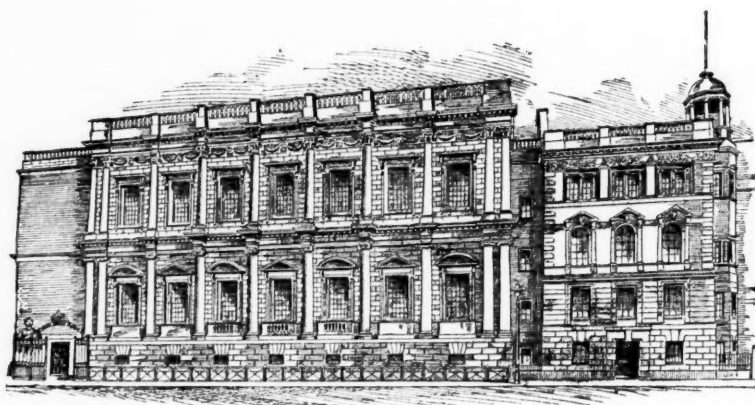


Published Quarterly

JOURNAL
of the
Royal United Service
Institution.



Vol. LXIX., No. 475.—AUGUST, 1924.



PUBLISHED AT THE

Royal United Service Institution, Whitehall,
LONDON, S.W. 1.

Telegraphic Address: "RUSSATUS, PARL, LONDON."

ALL RIGHTS
RESERVED

Sole Advertisement Department:
11, RED LION SQUARE, W.C.1

C. Gilbert-Wood, F.R.G.S.,
Director of Publicity.

Price
Six Shillings

GRAND HOTEL Charing Cross, GLASGOW

Visitors received only on Room and Breakfast or Boarding terms.

Private Sitting Room from **12/6** per day.
Room and Breakfast from **12/6** per day.

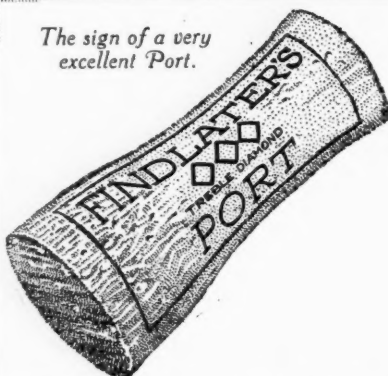
TABLE D'HÔTE MEALS.

Breakfast	3/6	Afternoon Tea	1/6
Luncheon	3/-	Dinner	6/-
High Tea	3/6	Supper	3/6

Weekly Full Boarding Terms, including Breakfast,
Lunch, Afternoon Tea, Dinner or Supper ... from **Six Guineas** per person.

Also Restaurant à la Carte Service.

*The sign of a very
excellent Port.*



A lovely soft Wine of rich ruby colour. Good to look upon and "clean" and satisfying to the discreet palate. Supplies of all Findlater's Wines and Spirits can be obtained throughout the world. Full particulars furnished on application to:

FINDLATER MACKIE TODD & CO L^{TD}

WHOLESALE & EXPORT
WINE MERCHANTS

FINDLATER'S CORNER . LONDON BRIDGE, S.E.1.

LONDON

Agents throughout the World.

BURMA SAUCE

A perfect Relish with a rare and delicate flavour, quite distinct from all other. If you want a new and delightful sensation in sauces—

GIVE IT A TRIAL.

WHITE, COTTELL & Co.,
LONDON, S.E. 5.

Malt Vinegar and Sauce
Makers.

**SYMONS' GOLD MEDAL
DEVONSHIRE CYDER**

Equal to many brands of Champagne at tenth of the cost

Free Samples, with prices and names of nearest agents, on application to

JNO. SYMONS & CO., LTD.

Apple Mills - TOTNES, DEVON

London Office and Stores:

Butcher Row, Ratcliff, E. 4.

NAVAL AND MILITARY MESSES SUPPLIED ON SPECIAL TERMS

CONTENTS FOR AUGUST, 1924.

	PAGE
1. FRONTISPIECE: A WATER-COLOUR PAINTING OF H.M.S. "MARTIN," OFF THE ISLAND SABA, WEST INDIES.	
2. SECRETARY'S NOTES	xv
3. THE VALUE OF CIVIL AVIATION AS A RESERVE TO THE ROYAL AIR FORCE IN TIME OF WAR (<i>Lecture</i>). By AIR COMMODORE R. H. CLARK-HALL, C.M.G., D.S.O., R.A.F.	415
4. THE SUPPLY AND TRAINING OF OFFICERS FOR THE ARMY (<i>Lecture</i>). By COLONEL THE HON. M. A. WINGFIELD, C.M.G., D.S.O.	433
5. THE ANTI-SUBMARINE CAMPAIGN IN THE MEDITERRANEAN SUBSEQUENT TO 1916 (<i>Lecture</i>). By CAPTAIN C. V. USBORNE, C.M.G., R.N.	444
6. THE PAST AND FUTURE OF THE ROYAL INDIAN MARINE (<i>Lecture</i>). By REAR-ADMIRAL H. L. MAWBEY, C.B., C.V.O.	465

Continued on page 3.

DELBECK
Champagne

EXTRA RÉSERVE, EXTRA SEC, VINTAGE 1914.

Sole Agents for the United Kingdom—

Messrs. MORGAN, FURZE & CO., LTD.,
81, Cannon Street, London, E.C.4.

Telephone: CENTRAL 3144.

Telegraphic Address: SOLERANNO, CANNON, LONDON.

Glyn, Mills & Co.

(Established 1753)

Registered with unlimited liability, 1885,

incorporating

CHILD & CO. and HOLT & CO.

(Established before 1600)

(Established 1809)



BANKERS

Army and Air Force Agents, Navy and Prize Agents.

Capital	-	-	-	-	-	-	£1,060,000
Reserve Fund	-	-	-	-	-	-	530,000
Current and Deposit Accounts	-	-	-	-	-	-	31,426,234
Cash in Hand and at Bank of England	-	-	-	-	-	-	5,430,472
Money at Call and Short Notice	-	-	-	-	-	-	6,432,000
Investments	-	-	-	-	-	-	9,979,128
Advances, etc.	-	-	-	-	-	-	7,124,563
Balances with and Cheques in course of collection on other Banks in the United Kingdom	-	-	-	-	-	-	1,436,080

30th June, 1924.

Managing Partners :

LORD WOLVERTON.

LAURENCE CURRIE.

LORD HILLINGDON.

General The Hon. SIR H. A. LAWRENCE, K.C.B.

Brigadier-General A. MAXWELL, C.M.G., D.S.O.

ERIC GORE BROWNE, D.S.O.

FREDERICK WILLIAM FANE.

Head Office: 67, LOMBARD STREET, E.C.3

Childs Branch - - - 1, FLEET STREET, E.C.4

Holts Branch - - 3 & 4, WHITEHALL PLACE, S.W.1

The Bank conducts every description of Banking Business, both British and Foreign.

Letters of Credit issued. Home and Foreign Credits established. Executorships and Trusteeships undertaken.

Wonderful Value JUAN LOPEZ.
ASK YOUR CIGAR MERCHANT TO
SHOW YOU ONE OF THESE FINE
HAVANA CIGARS
 Price **9d.** Each.
 1922 Crop.

“NOBLEZAS.”

A. JIMENEZ & SONS,
65, Fenchurch St., LONDON.

NAVAL MESSES CAN BE SUPPLIED IN BOND.



Actual Size.

If unable to obtain write for nearest agent to—

CONTENTS—continued from page 1.

	PAGE
7. THE BATTLES OF SALT, AMAN AND JORDAN FROM TURKISH SOURCES <i>(continued)</i> . By SKANDER BEY	488
8. SOUTH AFRICA <i>(continued)</i> . By CAPTAIN H. T. BIRCH-REYNARDSON	499
9. THE CAMPAIGN IN MESOPOTAMIA—THE FIRST PHASE. By “DALIL”	510
10. CARRYING-POWER IN WAR. By C. ERNEST FAYLE	527
11. DISTANT CONTROL. By LIEUTENANT-COMMANDER G. C. STEELE, V.C., R.N.	542
12. NAVAL NOTES	553
13. MILITARY NOTES	569
14. AIR FORCE NOTES	582
15. PRINCIPAL ADDITIONS TO LIBRARY	596
16. REVIEWS OF BOOKS	598

The
Electrical & General Cleaning Co., Ltd.
 4, ONSLOW PLACE, SOUTH KENSINGTON, S.W. 7.
Specialists in Modern Cleaning Methods.

Carpets, upholstered furniture, libraries,
 billiard tables, etc., cleaned by
PORTABLE ELECTRIC VACUUM CLEANERS.
 Telephones sterilized, windows cleaned,
 paint washed, ball room and other
 floors and linoleum polished

ESTIMATES FREE AND
 WITHOUT OBLIGATION

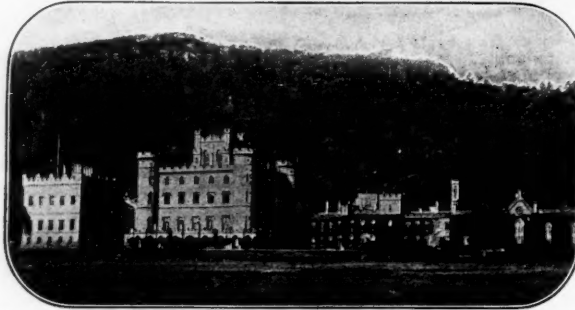
Telephone: Kensington 1615.

TAYMOUTH CASTLE,

KENMORE, ABERFELDY, PERTHSHIRE.

The former Residence of the Earls of Breadalbane.

Scotland's Hotel de Luxe



A MAGNIFICENT HOTEL AND ESTATE, OFFERING ALL THE FACILITIES OF A PERFECT HOLIDAY RESORT AMIDST PALATIAL SURROUNDINGS.

Situated on the Shores of Loch Tay amongst the most beautiful scenery in the Highlands.

AN IDEAL MOTORING CENTRE.

Extensive garage accommodation, with 50 lock-ups.

PRIVATE 18-HOLE GOLF COURSE. TENNIS. SALMON AND TROUT FISHING.
SHOOTING. HORSE RIDING (Resident Riding Master and own Horses).

ORCHESTRA - DANCING - UNEXCELLED CUISINE AND SERVICE.

Station: ABERFELDY (Hotel motors meet trains).
Tel. Add.: TAYMOUTH CASTLE, KENMORE.

TARIFF FROM MANAGER.

SMITH & HOEY, LTD.,

Wine, Spirit and Liqueur Merchants,

3, LOMBARD COURT, LONDON.

-Established 1868.

AGENCIES AND MONOPOLIES.

SCOTCH WHISKY	-	-	"Scottish Club."	
			"S.S." (Lowry, King & Co.).	
			"Coldstream."	
BRANDY	-	-	-	Heliot and Co., Cognac.
CHAMPAGNE	-	-	-	Louis Fleuron & Cie. Reims.
VERMOUTH (French)	-	-	-	Forgeron Père et Fils. Marseilles.
				Paul Crispin, Paris.
VERMOUTH (Italian)	-	-	-	E. Martinazzi & Co., Turin.
CLARET	-	-	-	Château Haute Barde.
AUSTRALIAN WINES	-	-	-	"Heron" Brand.
PORT	-	-	-	"Redalto," No. 1. Ruby & Old Reserve Tawny.
SPARKLING MUSCATEL	-	-	-	Louis Fleuron & Cie.
SPARKLING MOSELLE	-	-	-	Louis Fleuron & Cie.

Special arrangements and quotations to Naval, Military and Air Force Messes, and references from Messes already on our books sent if wished.

Cable and Telegraphic Address:—
"DOZENS," LONDON.

Telephone Nos.:—
AVENUE 2482 and 5530.



HONEY BEE TOBACCO

is an expensively produced mixture whose full fragrance is reminiscent of the spacious days when tobacco was tobacco.

THE LEAF

This is of highest grade, scientifically selected for its aroma and blended by men of life-long experience.

MATURED

Special maturing imparts to Honey Bee the roundness and generosity of old wine and an enticing bouquet that lingers on the palate.

AROMATIC

Being more fully matured than is usual, Honey Bee possesses that old-fashioned fragrance which smokers of cultured taste demand.

COOL SMOKING

Again, because it is fully matured the bite and burn of raw tobacco gives place to a zephyr-like coolness that pleases even the most sensitive palate.

HONEY BEE RIPE MATURED TOBACCO

PURE VIRGINIAN FLAKE
MILD · MEDIUM · FULL

Packed in

1-oz., 2-oz., & 4-oz. tins at 1/1 per oz.

In case of difficulty in obtaining supplies, please send name and address of your tobacconist, together with particulars of your requirements, to:—

Sole Proprietor:—

T. H. COLLINS, Mansfield.

ORAL & CORRESPONDENCE TUITION

for the **PRELIMINARY** and **PROFESSIONAL EXAMINATIONS** of the **ACCOUNTANTS'** and **SECRETARIES'** Institutes, Societies and Associations.

¶ Also for "**MATRIC.**" and **DEGREES (MATHEMATICS; Science; Commerce).**

¶ Work for the following **STAFF COLLEGE** papers is likewise undertaken:—

- | | |
|------------------------------|--------------------------|
| (a) Business Administration. | (c) Physics. |
| (b) Political Economy. | (d) Chemistry. |
| | (e) French. |
| | (f) MATHEMATICS — |
- and corresponding papers for **ARMY, NAVY, R.A.F., etc.**

¶ Service is **PERSONALLY** rendered by a Chartered Secretary, and Chartered Accountant, a graduate with honours in **MATHEMATICS & SCIENCE** (1910).

¶ In cases, professional and academic studies can be pursued concurrently.

¶ **VISITING** Work, in or near **LONDON**, is undertaken, by arrangement.

¶ **Address:—**Liout. "B." at 12a, Albany Street, Regents Park, N.W. 1
—opposite Great Portland Street Station ("Met.")

¶ During **VACATION**, holidays in **FRANCE, BELGIUM, etc.**, are organised with, or without, tuition.

MUSEUM 6934.

PROBSTHAIN & Co.

Oriental Publishers and Booksellers.

41, GT. RUSSELL STREET, LONDON, W.C.1.

Large Stock of Oriental Literature in all its Branches.

Catalogues Nos. 30-32 on India & Sanskrit & Allied Literature to be had on application.

Venturesome Voyages of Capt. Voss (most remarkable book) - - - 24/-
Rudolf Lange. Text Book of Colloquial Japanese 25/-
Chas. R. Lanman. A Sanskrit Reader: Text, Vocabulary and Notes - - - 18/-

Secretaryship:

Splendid Club now owned by small Syndicate, and situated in the City of London, with a Membership of close on 300, requires active Secretary who will take charge and be willing to invest small Capital. Preference given to retired Military or Naval Officer who can influence new Members and also Regimental Gatherings, etc. Good yearly income assured suitable applicant, with pleasant social connection. Membership consisting almost entirely of Literary, Press, and other gentlemen, mainly associated with the Journalistic profession. All applications will be treated with the strictest confidence.

Please apply in first instance to:—

W.P., c/o C. GILBERT-WOOD, Esq., F.R.G.S., W.J.L., etc., 11, Red Lion Square, London, W.C.1.

THE AUSTIN REED SHOPS are essentially men's shops, planned to make buying a pleasure to the most diffident male shopper. There, the needs of the particular man have been studied with such understanding that he may always be certain of getting what he wants from the widest possible choice of good things in unobtrusive good taste.

Austin Reed Ltd
MEN'S WEAR STYLISTS

13 Fenchurch St. EC3 113 Regent St. W1
5 St. Mary Axe, EC3 Shell Corner, Kingsway, WC2 135 Victoria St. SW1
157a Cheapside, EC2 21/22 Walbrook, EC4 33 Oxford Street, W1
189 Strand, WC2 (corner of Cannon Street) 24 Coventry St, W1
Also at Birmingham, Manchester, Liverpool, Leeds, Bristol and Preston

HARVEY'S

UNIVERSAL

STEEL CUPBOARD

FOR WHEREVER A
CUPBOARD IS NEEDED

SIZE:— 6 ft. high, 2 ft.
wide, 1 ft. 6 in. back to
front. Finished in standard
Olive Green Enamel.

£6

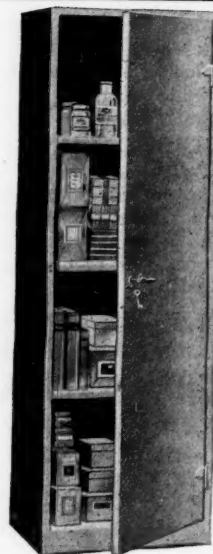
Packed and
delivered any
station in
Great Britain.

Can be supplied in Grained Oak or
Mahogany finish for £2 extra.

FIRE RESISTING, PROOF AGAINST
VERMIN & ROT

MORE ECONOMICAL THAN WOOD.

G. A. HARVEY & CO (LONDON) Ltd
WOOLWICH RD. LONDON SE7.



ROYAL UNITED SERVICE INSTITUTION.

PATRON.

HIS MAJESTY KING GEORGE V.

VICE-PATRON.

Colonel H.R.H. The PRINCE OF WALES, K.G., K.T., G.C.S., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., M.C.

PRESIDENT.

Field Marshal H.R.H. DUKE OF CONNAUGHT, K.G., K.T., K.P., G.C.B., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., V.D.

VICE-PRESIDENTS.

Field-Marshal *The Right Hon. The Lord* METHUEN, G.C.B., G.C.M.G., G.C.V.O.

Admiral of the Fleet *The Right Hon. Lord* WALTER KERR, G.C.B.

Field-Marshal *The Right Hon. The Lord* GRENFELL, G.C.B., G.C.M.G.

Major-General *The Right Hon. The* EARL OF SCARBROUGH,

G.B.E., K.C.B., T.D., A.D.C.

Field-Marshal FERDINAND FOCH, G.C.B., O.M. (Maréchal de France).

Field-Marshal *The Right Hon. The* EARL HAIG, K.T., G.C.B., O.M., G.C.V.O., K.C.I.E.

Admiral of the Fleet *Sir* A. D. FANSHAWE, G.C.B., G.C.V.O.

CHAIRMAN.

Admiral *Sir* R. G. O. TUPPER, G.B.E., K.C.B., C.V.O.

VICE-CHAIRMAN.

General *Sir* E. G. BARROW, G.C.B., G.C.S.I.

MEMBERS OF THE COUNCIL.

Colonel *The Right Hon. the Lord* AMPHILL, G.C.S.I., G.C.I.E., late 3rd Bn. The Bedfordshire Regt.

Lieut.-Colonel A. S. BATES, D.S.O., T.D., London Rifle Brigade.

Admiral of the Fleet *The Right Hon. the Earl* BEATTY, G.C.B., O.M., G.C.V.O., D.S.O., First Sea Lord.

Lieut.-General *Sir* NOEL BIRCH, K.C.B., K.C.M.G. (Master-General of the Ordnance).

Vice-Admiral *Sir* H. H. BRUCE, K.C.B., M.V.O.

Major-General *Sir* J. T. BURNETT-STUART, K.B.E., C.B., C.M.G., D.S.O. (Director of Military Operations and Intelligence)

Captain W. F. CABORNE, C.B., R.D., Royal Naval Reserve.

Lieut.-General *Sir* PHILIP W. CHETWODE, Bart., K.C.B., K.C.M.G., D.S.O. (G.O.C.-in-C., Aldershot Command.)

Colonel C. H. COLVIN, C.B., D.S.O., late 3rd Bn. Essex Regiment.

Major-General H. D. FARQUHARSON, C.M.G., Royal Marines.

Director of Naval Intelligence (Rear-Admiral M. S. FITZMAURICE, C.B., C.M.G.)

Lieut.-General *Sir* J. A. L. HALDANE, G.C.M.G., K.C.B., D.S.O.

General *The Right Hon. the Lord* HORNE, G.C.B., K.C.M.G.

Brig.-General *The Right Hon. the Earl of* LUCAN, K.B.E., C.B., T.D., A.D.C.

Air Commodore E. R. LUDLOW-HEWITT, C.M.G., D.S.O., M.C., R.A.F.

General *Sir* IVOR MAXSE, K.C.B., C.V.O., D.S.O.

Lieut.-General *Sir* H. S. G. MILES, G.C.B., G.C.M.G., G.B.E., C.V.O.

Colonel *His Grace the Duke of* NORTHUMBERLAND, C.B.E., M.V.O., Tyne Electrical Engineers R.E. (T.A.).

Auditors.—Messrs. WILDE, FERGUSON DAVIE & MILLER, Chartered Accountants, 61½, Fore Street, E.C.2.

The undermentioned can become members by intimating their wish to the Secretary, and either forwarding to him their subscription, or giving him a written authority on their bankers or agents for its payment:—Commissioned officers of the Royal Navy, Regular Army, Royal Air Force, Royal Marines, Special Reserve.

Field-Marshal *Sir* W. R. ROBERTSON, Bart., G.C.B., G.C.M.G., K.C.V.O., D.S.O.

Captain C. M. STAVELEY, C.M.G., A.D.C., R.N., Naval Assistant to Admiral Commanding Coast Guard and Reserves.

Admiral-of-the-Fleet *Sir* F. C. D. STURDEE, Bart., G.C.B., K.C.M.G., C.V.O.

Major-General H. F. THUILLIER, C.B., C.M.G. (Director of Fortifications and Works).

Captain *The Right Hon. the Lord* TREDEGAR, O.B.E., F.S.A., R.N.V.R. (additional).

Colonel C. W. TROTTER, C.B., T.D., late S. Notts Hussars.

Honorary Members of the Council.

General *Sir* A. W. CURRIE, G.C.M.G., K.C.B. (Canada).

Lieut.-General *Sir* J. MONASH, K.C.B., V.D. (Australia).

Major-General *Sir* A. H. RUSSELL, K.C.B., K.C.M.G. (New Zealand).

General *The Right Hon.* J. C. SMUTS, P.C., C.H. (South Africa).

Lieut.-General *H.H. The Maharaja of* GWALIOR, G.C.S.I., G.C.V.O., G.B.E. (India).

Secretary, Curator and Chief Executive Officer.

Lieut.-Colonel *Sir* ARTHUR LEETHAM, C.M.G., F.S.A., late Royal Monmouthshire Royal Engineers and 13th Hussars.

Assistant Secretary and Accountant.

A. N. A. PINHEY, Esq., late 12th Bn. The London Regt.

Librarian.

Major H. G. PARKYN, O.B.E. F.S.A., 5th Bn. Rifle Brigade.

Editor.

Lieut.-Commander A. COLQUHOUN BELL, R.N.

Reserve of Officers, Militia, Indian and Colonial Naval and Military Forces, Yeomanry, Territorial Force, Royal Naval Reserve, Volunteer Corps, and Cadet Battalions and Corps, as published in the Official Navy and Army Lists, together with retired officers of the same whose names are retained in the Navy or Army Lists and Naval Cadets, and Cadets of the Royal Military Academy, Woolwich, Royal Military College, Sandhurst, and Royal Military College, Kingston, Canada, on the recommendation of their commanding officers, Chairmen and members of the Territorial Force Associations, and Secretaries of the same.

Officers retired from the various Services enumerated above, whose names do not appear in the Navy or Army Lists, are eligible for election by ballot on the recommendation, on personal knowledge, of two members of the Institution.

(N.B.—An Officers' Mess is not eligible for Membership.)

The terms of subscription are:—

Annual. £1 1s. od. entrance; and £1 1s. od. annual, payable on the 1st January each year.

Life. £15, payable in one sum.

Life. £15 15s., payable in three instalments of Five Guineas each; the first on joining the Institution, the others on the 1st January of each of the succeeding two years.

Members joining after the 1st October in any year are not called upon for any subscription the following year.

An extra payment of Ten Shillings entitles a member in the United Kingdom to the loan of Four Volumes at a time from the Library for a period of twelve months from the date of the subscription.

When a member desires to pay his subscription through his banker or agent, he should send to the Secretary a written authority as follows:—

To (Banker or Agents)

On receipt of this order please pay to Secretary, Royal United Service Institution or order, my subscription to that Institution (according to the terms above).

Name in full.

Rank, Ship, or Regiment.

Address to which Journals and other communications should be sent.

Officers of the Indian and Colonial Naval and Military Forces, temporarily in the United Kingdom, may become members for a period of six months on payment of Ten Shillings and Sixpence, or One Guinea for a period of twelve months; members of the United Service Institution of India, for six months on payment of Five Shillings.

The Institution contains the best professional Library in the United Kingdom with an excellent catalogue; in addition, a Card Index of articles which have appeared in Service and leading periodicals on important subjects, with a view to assisting officers working for promotion and Staff College examinations; it has also an excellent collection of maps and charts, fully catalogued. Reading and Smoking Rooms are provided, with the leading papers, periodicals, and writing materials; an interesting and unique Museum, depicting the history of the Navy and Army; a Theatre, in which lectures on professional subjects, followed by discussion, are frequently given; and is open daily from 10 till 7, except Sundays, Christmas Day and Good Friday.

The JOURNAL contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c. It is sent to ALL the 6,000 Members, post free. "The R.U.S.I. JOURNAL" is published Quarterly. Should an Officers' Mess wish to subscribe to the Journal, the Subscription is £1 6s. od., which includes postage to any part of the world.

The Royal United Service Institution, **WHITEHALL, S.W.1.**

FORM OF BEQUEST.

I Bequeath to THE ROYAL UNITED SERVICE INSTITUTION

the sum of £ _____ (free of duty),

or (in case of a specific legacy) my _____ (free of duty),

to be applicable for the general purposes of such Institution.

And I Declare that the receipt of the Secretary, or other proper officer for the time being of such Institution, shall be a sufficient discharge for the same.

RECIPIENTS OF THE ROYAL UNITED SERVICE INSTITUTION GOLD MEDAL.

(With rank of Officers at the date of the Essay.)

- | | |
|--|--|
| 1874. Captain H. W. L. Hime, R.A. | 1900. No Medal awarded. |
| 1875. Commander G. H. U. Noel, R.N. | 1901. Lieutenant L. H. Hordern, R.N. |
| 1876. Lieutenant J. F. G. Ross of
Bladensburg, Coldstream Guards. | 1902. Major A. H. Terry, A.S.C. |
| 1877. No Medal awarded. | 1903. Lieutenant A. C. Dewar, R.N. |
| 1878. Major T. Fraser, R.E.
Captain E. Clayton, R.A. | 1904. Lieut.-Colonel C. E. D. Telfer
Smollett, 3rd Bn. South Staf-
fordshire Regiment. |
| 1879. Captain The Hon. E. R. Fre-
mantle, C.B., C.M.G., A.D.C.,
R.N. | 1905. Major W. C. Bridge, South Staf-
fordshire Regiment, p.s.c. |
| 1880. Captain J. K. Trotter, R.A. | 1906. Lieutenant B. E. Domville, R.N. |
| 1881. Captain L. Brine, R.N. | 1907. Lieut.-Colonel A. F. Mockler-
Ferryman, Reserve of Officers. |
| 1882. No Medal awarded. | 1908. Major A. B. N. Churchill, R.G.A. |
| 1883. Captain C. Johnstone, R.N. | 1909. No Medal awarded. |
| 1884. Captain G. T. Browne, North-
amptonshire Regiment. | 1910. Captain P. W. Game, R.H.A. |
| 1885. Lieutenant F. C. D. Sturdee,
R.N. | 1911. Captain H. T. Russell, late R.G.A. |
| 1886. Captain C. E. Callwell, R.A. | 1912. Commander K. G. B. Dewar,
R.N. |
| 1887. No Medal awarded. | 1913. Major A. Lawson, 2nd Drags. |
| 1888. Captain J. F. Daniell, R.M.L.I. | 1914-15-16-17. No Medals awarded. |
| 1889. Captain H. F. Cleveland, R.N. | 1918. Lieutenant W. S. R. King-Hall,
R.N. |
| 1890. Captain G. E. Benson, R.A. | 1919. Colonel J. F. C. Fuller, D.S.O.,
Oxford & Bucks L.I. |
| 1891. Captain R. W. Craigie, R.N. | 1920. No Medal awarded. |
| 1892. Lieut.-Colonel J. Farquharson,
C.B., R.E. | 1921. Flight-Lieutenant C. J. Mackay,
M.C., D.F.C., R.A.F. |
| 1893. Commander F. C. D. Sturdee,
R.N. | 1922. Major R. Chenevix - Trench,
O.B.E., M.C., Royal Corps of
Signals. |
| 1894. Major F. B. Elmslie, R.A. | 1923. Captain A. H. Norman, C.M.G.,
R.N. |
| 1895. Commander J. Honner, R.N. | |
| 1896. Captain G. F. Ellison, Queen's
Royal West Surrey Regiment. | |
| 1897. Commander G. A. Ballard, R.N. | |
| 1898. Captain W. B. Brown, R.E. | |
| 1899. Commander G. A. Ballard, R.N. | |

RECIPIENTS OF THE CHESNEY GOLD MEDAL.

(With rank of Officers at the time of the Award.)

- | | |
|--|--|
| 1900. Captain A. T. Mahan, United
States Navy. | 1914. Sir Julian S. Corbett, LL.M.,
F.S.A. |
| 1907. Major-General Sir J. F. Maurice,
K.C.B., p.s.c. | 1919. Major-General E. D. Swinton,
C.B., D.S.O. |
| 1909. Hon. J. W. Fortescue, M.V.O. | 1921. Major-General Sir C. E. Callwell,
K.C.B. |
| 1910. Sir J. K. Laughton, Knt., M.A. | |
| 1911. Professor C. W. C. Oman, M.A.,
F.S.A. | |
| 1913. Colonel Sir L. A. Hale. | |



Royal United Service Museum

Situated in the Banqueting House of the old Palace of Whitehall (1622),—containing "The Celebrated Rubens Ceiling,"—and which recently commemorated its Tercentenary.

ALL THOSE INTERESTED IN THE HISTORY OF THE BRITISH NAVY AND ARMY SHOULD NOT FAIL TO VISIT THIS FASCINATING COLLECTION

- | | |
|--|---|
| Marvellous Collection of Arms from the Earliest Periods. | King William III.'s Flag. |
| Models of Warships, Guns and Battlefields, Old Uniforms, Head-dresses, Badges, Buttons, &c. | An Unique Collection of the Great War Souvenirs, and relics of all previous campaigns. |
| Siborne's renowned Model of the Field of Waterloo. | Field-Marshal Lord Wolseley's historical collection and the beautiful Wolseley Memorial Room. |
| Model of Trafalgar, arranged by Trafalgar Officers. | A Complete Collection of British Army and Navy Medals. |
| Historical relics of King Charles I., Drake, Cromwell, Raleigh, Marlborough, Wolfe, Cooke, Wellington, Nelson, Moore, Raglan, Franklin, Wolseley, Roberts, Kitchener, and many others. | Lord Cheylesmore's Medal Collection. |
| Two hundred stands of Regimental "Colours." | The Compass which steered Airship R. 34 across the Atlantic. |
| Historical Naval Flags. | The Saw which took Lord Nelson's arm off. |
| The French Colours captured by Lord Nelson. | The Balaclava Trumpet. |
| Oliver Cromwell's Flag and Sword. | Interesting Collection of Napoleonic Exhibits. |
| The Flag of the United States Frigate "Chesapeake." | Queen Elizabeth's Petticoat. |
| | Splendid Collection of Naval and Military engravings and prints. |
| | Innumerable other historical and interesting Exhibits. |

ADMISSION - 1/-

SATURDAY AFTERNOONS - 6d.

Soldiers and Sailors in Uniform Free.

Guides and Complete Illustrated Catalogues are obtainable.

N.B.—Officers of H.M. Forces (serving or retired) are eligible for Membership of The Royal United Service Institution. Entrance fee, £1 is. Membership, £1 is.

The Library contains the finest collection of Naval and Military literature, and the R.U.S.I. Journal is sent post free to all Members.

SOLE DIRECTOR OF PUBLICITY,

C. GILBERT WOOD, F.R.G.S., F.R.S.A.,

11, RED LION SQUARE, W.C. 1.

TELEPHONE HOLBORN 6191.

OBAN. GREAT WESTERN HOTEL.

LARGEST AND LEADING
HOTEL IN WEST HIGHLANDS.



Official Hotel R.S.A.C., A.A., and T.C. of America and A.C. de France.

SMOKING LOUNGE overlooking Bay and Yacht Anchorage.

LIFT. ELECTRIC LIGHT THROUGHOUT.

Motor 'Bus attends Trains and Steamers

Garage. Petrol. Moderate Tariff.

Inclusive terms can be arranged for lengthened stay.

ALEX. MCGREGOR, *Resident Proprietor*.

ORIENTAL BOOKS

INDIAN & PERSIAN ART,
MINIATURE PAINTINGS,
MSS., BRONZES, Etc.

Inspection of our Art Gallery is invited

We specialise in all Books for the study of Oriental languages, and other branches of Oriental Literature, of which we keep a large stock. Catalogues issued periodically, and sent gratis on application to Dept. 11.

LUZAC & CO.,

46 GREAT RUSSELL STREET, W.C.1.

AGENTS TO THE INDIA OFFICE, Etc.
PHONE MUSEUM 1462.



Booklet on application to W. Tribute
W. H. GAZE & SONS, LTD.,
Kingston-on-Thames.

Inverness

THE
**ROYAL
HOTEL**

Tel. 244.

A first class Hotel, opposite the Station, noted for its excellent service and a unique collection of old furniture. The best stopping place in this centre for the Highlands.

Proprietors :

TRUST HOUSES, LTD.

SACCONI & SPEED, LTD.

*Wine and Spirit Merchants
and Shippers.*

Naval, Military and Air Force Messes
supplied.

14, Pantons St., Haymarket, S.W.1

Houses at
Gibraltar, Edinburgh, Portsmouth,
Chatham, Devonport and Malta.

HIGH CLASS SPORTING GUNS

REILLY & CO.
FAMOUS GUNMAKERS
ASK YOU TO SEND
FOR THEIR NEW
LIST.

ESTABLISHED 100 YEARS.

- GUNS -

FROM £4 UPWARDS.

REILLY'S 107, BISHOPSGATE,
LONDON, E.C.2.

Princess Helena College EALING, W.5.

Principal—Miss Parker, M.A.

SCHOOL for the Daughters of
Gentlemen. Boarders only. Special
attention to Languages, English, Art,
Music. ————— Large Grounds.

Fees £105 to £120 a year.
Officers' Daughters £105 a year.

Hugh Rees

LTD.

MILITARY AND NAVAL
BOOKSELLERS, STATION-
ERS AND PUBLISHERS.

5, Regent Street, S.W.
AND AT CAMBERLEY, SURREY.

MILITARY AND NAVAL BOOKS
OF ALL DESCRIPTIONS ARE
KEPT IN STOCK AND CAN BE
SUPPLIED WITHOUT DELAY.

NOW READY.



THE CAVALRY JOURNAL



Published under the authority of the
Army Council, under the direction of
Field-Marshal Earl HAIG, K.T.,
G.C.B., etc. (Colonel Royal Horse
Guards and 17th/21st Lancers), assisted
by Lieut.-General Sir R. S. S. BADEN-
POWELL, Bt., G.C.B., K.C.V.O., etc.
(Colonel 13th/18th Hussars), Lieut.-
General Sir P. W. CHETWODE, Bt.,
K.C.B., K.C.M.G., D.S.O., Colonel
Commandant A. E. W. HARMAN,
C.B., D.S.O., Lieut.-Colonel Sir A.
LEETHAM, Knt., C.M.G. F.S.A.
and Major General T. T. PITMAN,
C.B., C.M.G. (Managing Editor).

PUBLISHED QUARTERLY.

Price 5s. net.

No. 53. JULY. 1924

CONTENTS.

THE UNVEILING OF THE CAVALRY WAR
MEMORIAL (*Frontispiece*).
THE UNVEILING AND DEDICATION OF THE
CAVALRY WAR MEMORIAL.
RUSSIAN CAVALRY OPERATIONS IN EAST
RUSSIA (*continued*).
THE ARAB REBELLION.
EXTRACTS FROM THE DIARY OF A BIG GAME
HUNTER IN EAST AFRICA.
THE AIR MAIL FROM CAIRO TO BAGHDAD.
SOME BRIDLES AND HEADSTALLS USED BY THE
BRITISH CAVALRY SINCE THE FORMATION
OF THE PRESENT STANDING ARMY.
A CAVALRY FIGHT NEAR ALEPPO.
REGIMENTAL POLO (*continued*).
YEOMANRY BADGES, PART I.
GARRISON HORSE SHOWS.
THE MAN WHO DID.
DISBANDED CAVALRY REGIMENTS—28TH, 29TH,
31ST, 32ND AND 33RD LIGHT DRAGOONS.
PROBLEM NO. XVI.
NOTES.
RECENT PUBLICATIONS.
SPORTING NOTES.

All SUBSCRIPTIONS should be sent to, and
all copies obtained direct from,

**The Royal United Service Insti-
tution, Whitehall, London, S.W.1.**

C. GILBERT WOOD, F.R.G.S., etc.,

Sole Director of Publicity,
11, Red Lion Square, London, W.C.1.

Telephone: Holborn, 6191.
Telegrams: "Gilbertwood, London."
Bankers: Bank of England.



PLAYER'S NAVY CUT

**BEAUTIFULLY COOL
AND
SWEET SMOKING.**

May be Obtained
from all Tobacconists
and Stores.

is pure Virginia
Tobacco made by hand
into Plugs—Navy Plugs—properly
and carefully cut into convenient slices.

It is manufactured for those who wish
for and appreciate a "straight" Virginia.

To enjoy Player's Navy Cut in perfec-
tion, thoroughly rub out the slices before
filling pipe or pouch.

Better still, leave the rubbed out slices
exposed to the ordinary atmosphere of a
room for an hour or so before the tobacco
is put into the pouch.

The result will be a delightfully cool and
easy smoking pipe of tobacco.

P.1034

Issued by The Imperial Tobacco Co. (of Great Britain and Ireland), Ltd.

Get about town in a Daimler



BY APPOINTMENT.

If you've a 'Phone
You've a Daimler.

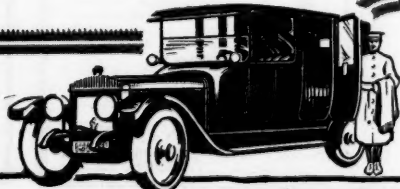
For speed and luxurious comfort there is no
better way of getting about town or out of town
than in a six-cylinder Daimler landaulette.
Daimler Hire, Ltd., have at your service, at
any hour of the day and night, the finest fleet
in London of high-powered Daimler cars.
Each car is built to seat six with ease. Each
car is in first-class condition. You should
write for complete tariff.

Daimler

HIRE LTD

243, Knightsbridge, London, S.W.7.

Phone
Kensington 7040



Government Surplus TELEPHONES
New Condition. Simple to Instal.
 For HOME, OFFICE or FACTORY, etc.
 Per Pair **49/6** FREE WIRE (100 yds.)
 6 Instruments & Exchange Board **£9:10:0**
 12 Instruments & Exchange Board ... **£19:0:0**
 Complete installations up to 100 lines, liberal quantity of WIRE FREE.
 Cash with Orders—Carriage Forward.
 Money refunded if goods returned in good condition within 7 days.
 SENTINEL TRADING Co., Ltd. (Dept. R.U.),
 4 Eagle Street, Southampton Row, London, W.C. 1



REMEMBER
Two Steeples No.83
 quality when you want a good pair of socks.
 FROM ALL HOBIERS



The WEMBLEY BRUYERE PIPE
 LONDON MADE
FULLY GUARANTEED.
 In all popular Shapes.
 POST FREE **7/6** Each
 The Great Exhibition Pipe, made to suit the World's tastes.
 An example of BRITISH workmanship.
 Send sketch of your favourite shape.
 Shape No. 1001
 The British Pipe Co., 102, High St., Hornsey, N.8



"BRITISH SIMPLEX" VIOLET RAY & OZONE GENERATOR
 —BLOOD INVIGORATIVE—
 —NERVE TONIC—
 —SCALP ENERGETIC—
 —TISSUE BUILDING—
 —WHITE REGENERATING—
 —VITAMINATIVE—
 Violet Ray High Frequency is accepted by the Medical Profession as a remedy for Nerve, Scalp, Skin, Bronchial, Rheumatic and other complaints. DAILY TREATMENT IS ESSENTIAL and this can be secured in your own Home at a 1d. per hour. The "British Simplex" can be safely used by anyone without tuition. The 6 guinea Home or Specialists set, which simply connects to the lighting circuit, is British made and is enclosed in a polished oak case with 3 applicators and instructions. Guaranteed for 12 months. Free trial for 3 days.
 The Simplex Invention Co., Dept. U.S., 7 Hertford St. W.1



WOODGER'S KIPPERS
 Sent direct from Coast to Table.
 2/6 per 4 lb. carton, post paid, or Sample for 1/6
 Clubs and Hotels specially catered for, 6/6 per stone delivered.
JOHN WOODGER & SONS, LTD.,
 Gt. Yarmouth. Established 1846.
 Originators of the Kipperd Herring.

Make your own CIGARETTES
 at home with SIGROL, the simplest and most efficient cigarette maker ever invented. Makes cigarettes of any desired thickness or length, uses any kind of tobacco—always with the same unfailing perfection. Small enough to stand on your mantelshelf: made of polished aluminium.
 Send postal order 21/-; money refunded if you are in any way dissatisfied.
A Merchant's Opinion of the SIGROL.
 "I have used your machine and find it the best small machine I have seen."
 Sigrol Mfg. Co., 7, Perham Rd., W. Kensington, London, W.14




GARDEN HOSE.
 60-ft. 1/2 in. 1-ply High Grade Hose with Tap Union and Branch Pipe.
 Without Tap on Branch Pipe ... carriage paid 18/6
 With Tap, as illustrated ... carriage paid 19/6
 Reel to take Hose ... 4/6
SPECIAL GIFT OFFER—To all purchasers of a coil of hose in answer to this advertisement a pair of strong Pruning Shears will be sent free of charge.
CAMPBELL (Dept. R.), 6 & 8, Ward Road, STRATFORD, E. 15.



UNIQUE VASE FOR FLOWERS OR FRUIT
 NOVEL combination for Table Centre. Makes splendid Rose Bowl, EPERGNE or Fruit Dish and Flower Vase. Centre Vase watertight. GILT wire net for Bowl included in price.
 HEAVILY SILVER-PLATED on copper.
W. S. PARVIN,
 64, Shepherdess Walk, LONDON, N.1.
 33/-
 Post and Packing Free. 11 high X 11 across.



USE A TOMMY'S COOKER ON YOUR HOLIDAYS.
 Price 1/-
 Obtainable at Army & Navy Stores; Harrods; Benetfink's; and all Ironmongers.
TOMMY'S COOKER CO., LIMITED,
 6, PENTONVILLE ROAD, LONDON, N.1.



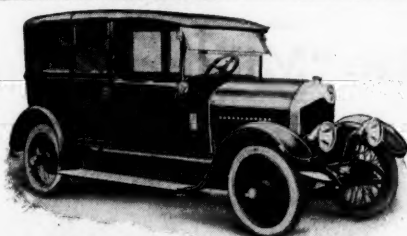
The
Langham Hotel

PORTLAND PLACE, W.1
MAGNIFICENT LOUNGE AND
DELIGHTFUL RECEPTION ROOMS
FOR WEDDINGS AND DINNERS.

MOST CENTRAL FOR LUNCHEON
AND AFTERNOON TEA.
OPEN TO NON-RESIDENTS.

Telegrams: Langham, London.

Telephone: Langham 2080.



FOR HIRE
PRIVATE CARS
OF THE HIGHEST CLASS
BROCKS

(MOTORS) LIMITED.

98/102, WIGMORE STREET, W.1.

Langham 1222
ALSO
Hampstead 6203.

A FAMILY

EQUALLING A TOWN!

BARNARDO'S ANNUAL APPEAL
FOR HALF-CROWNS FOR FOOD.



Every day Barnardo's are faced with the task of feeding their great family of 7,300 boys and girls and babies. It equals a town. Think of feeding a town! Please help them; you always send to the Half-Crown Fund.

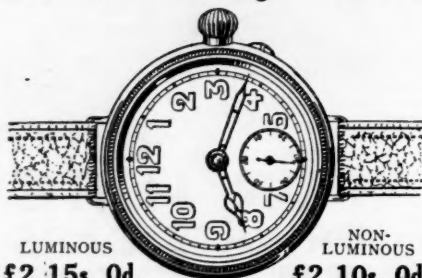
400,000 Half-Crowns urgently required.

Please Help the Little Child up the Ladder.

Cheques and Orders payable "Dr. Barnardo's Homes Food Fund," and crossed, may be sent to the Honorary Treasurer, Howard Williams, Esq. (Dept. R.J.), 18-26, Stepney Causeway, London, E. 1.



The "Military" Watch



LUMINOUS
£2 15s. 0d.

NON-
LUMINOUS
£2 10s. 0d.

The famous "Military" Watch, now available at less than pre-war prices, is contained in a one-piece solid silver screw case that is dust and damp proof. This watch is of guaranteed reliability, designed to withstand all conditions of hard wear, and is indispensable to all members of H.M. Forces. A fully illustrated catalogue of Wristlet Watches sent post free on request.

**The
Goldsmiths & Silversmiths
Company Ltd**

Only address. No branches.
112, REGENT STREET, LONDON, W.1.

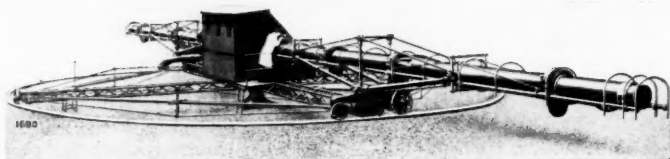
==

!!

and
sq.

==





Self-Contained Long Base

Coast Defence Rangefinders

The Rangefinder illustrated has a base length of 100 feet (30 m 48). The ease with which it is manipulated, either by hand or by power, is one of its special features and ranges can be taken rapidly and frequently. It is guaranteed to measure ranges of 10,000 metres to an accuracy of within 7 metres, 20,000 metres to within 27 metres, and 40,000 metres to within 108 metres; these figures represent a measurement of 0.43 seconds of angle. In independent official tests the results actually obtained correspond to an accuracy of 0.2 seconds of angle.

Messrs. Barr & Stroud, Ltd, specialise in the design and manufacture of instruments for Naval, Military and Air Services. Their products include Rangefinders from 66 cms. to 30 m 48 in base, Submarine Periscopes, Heightfinders, Fire Control Instruments, Binoculars Cinematograph Projectors, Petrol Engines for small wireless and electric lighting sets, etc., etc.

Barr & Stroud

LIMITED

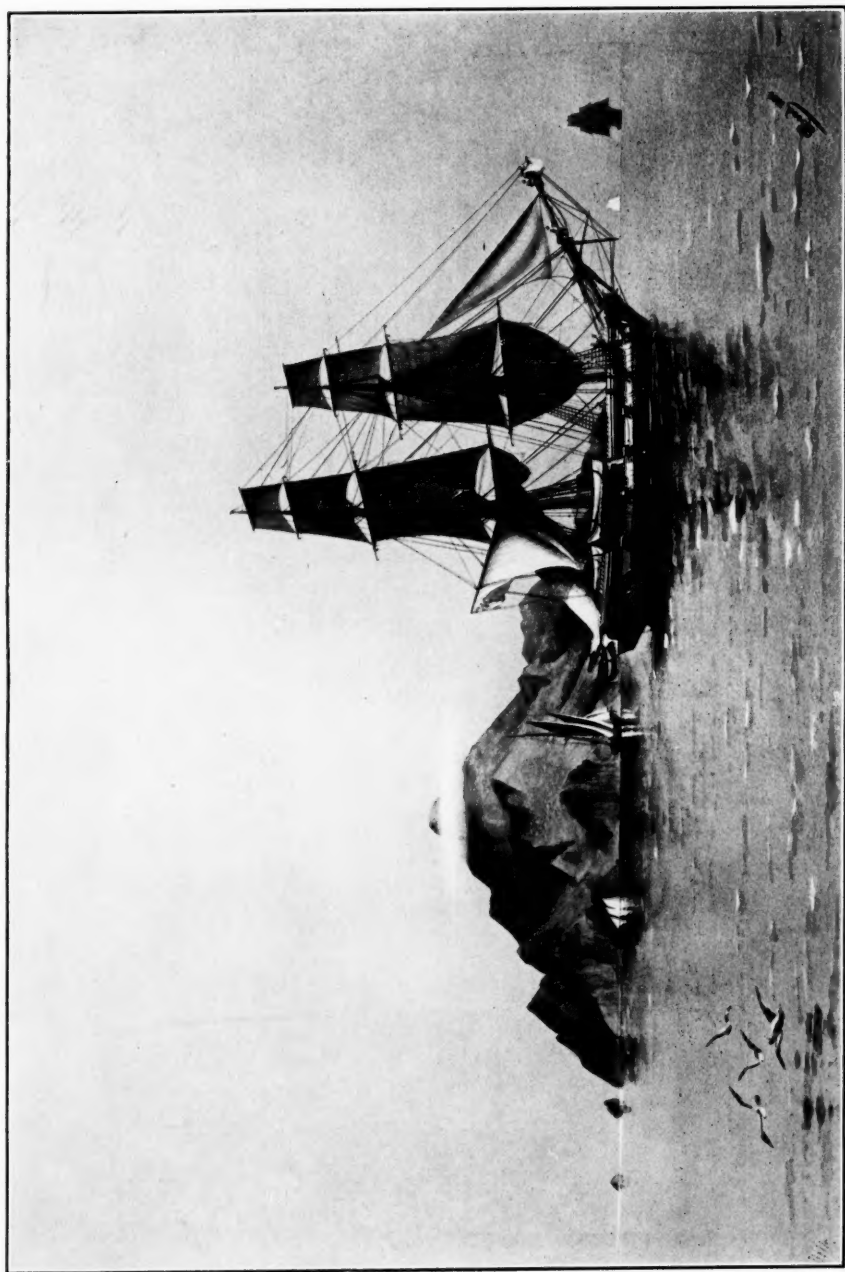
ANNIESLAND GLASGOW

&

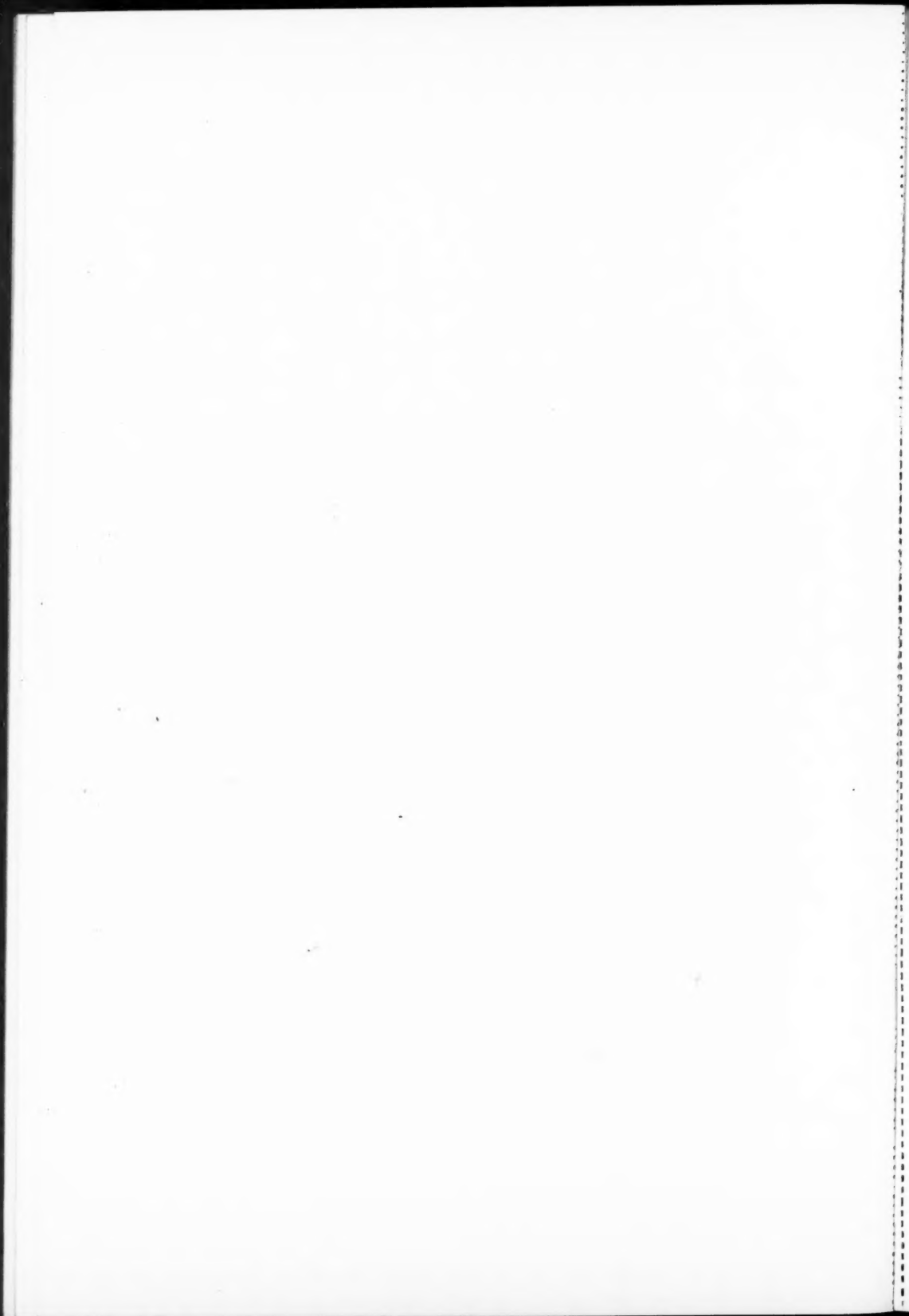
15 Victoria Street, London, S.W.1.

Telegrams: "Telemeter,	Glasgow,"
"Retemelet, Sowest, London."	
Telephones: Glasgow.	Western 3775,
London.	Victoria 7397.





A WATER-COLOUR PAINTING OF H.M.S. "MARTIN," OFF THE ISLAND SABA, WEST INDIES.
(Painted and presented to the Royal United Service Institution by G. Lacy Good, Esq.)



SECRETARY'S NOTES.

AUGUST, 1924.

I. Royal Visits.

H.M. the Queen of Roumania, accompanied by the Infante Alphonso and the Infanta Beatrice of Spain, visited the Museum on 20th May, and expressed themselves as being greatly pleased with the exhibits and the Museum generally.

His Imperial Highness Cafari Makonnen, Heir Apparent of Ethiopia, and his suite visited the Museum on July 12th. He expressed his great satisfaction at what he had seen, being especially interested in the exhibit brought back by General Lord Napier of Magdala from Abyssinia in 1868. Owing to a change of the day of this visit, the Chairman of the Council was unavoidably prevented from being present to receive His Imperial Highness.

II. Council.

The Council regret to report the death of Captain W. F. Coborne, C.B., R.D., R.N.R. He joined the Council in 1900, and served continuously, being chairman of the Museum and General Purposes Committee since 1905.

Captain Sir David Wilson-Barker, Knt., R.N.R., has been elected a member of the Council vice the late Captain W. F. Coborne, C.B., R.D., R.N.R., under Chapter 4, paragraph 9, of the Bye-Laws.

III. Officers Joined.

The following Officers joined the Institution during the months of May, June and July, viz. :—

Captain C. E. Dalton, Royal Warwickshire Regiment.
Lieutenant J. F. C. Marshall, R.F.A.
Captain K. Guy, I.A.
Captain J. P. Kellett, D.S.O., M.C., Royal Fusiliers.
Lieutenant F. W. L. McC. Parker, R.E.
Lieutenant G. H. Dykes, Lancashire Fusiliers.
Captain F. S. Waldegrave, M.C., Queen's Own Cameron Highlanders.
Captain D. S. Frazer, I.A.
Lieut.-Commander P. W. Nelles, R.C.N.
Captain M. A. Hepworth, I.A.
Captain C. O. Crawford, M.C., I.A.
Lieutenant Count A. D. R. de Salis, Scots Guards.
Lieutenant J. M. L. Renton, Rifle Brigade.
Lieut.-Commander G. G. D. Salmon, D.S.C., R.N.
Captain G. G. Voelcker, I.A.
Captain C. H. Boucher, I.A.

Major G. G. Walker, D.S.O., M.C., R.G.A., Reserve of Officers.
Captain J. G. Frere, D.S.O., M.C., Suffolk Regiment.
Lieutenant C. F. Forestier-Walker, M.C., R.F.A.
Lieutenant C. H. L. Bate, Royal Fusiliers.
Captain P. Bayldon, late R.F.A. (T.A.).
Major F. J. Deighton, I.A.
Captain E. H. P. Jackson, R.H.A.
Lieutenant H. McL. Morrison, M.C., Royal Ulster Rifles.
Captain L. W. Wood, I.A.
Second-Lieutenant J. T. T. Fletcher, Welsh Guards.
Lieut.-Commander G. D. Latham, R.N.
C. H. Jones, Esq., late Civil Staff, Admiralty.
Captain P. R. Quayle, I.A.
Captain K. Horan, Oxfordshire and Buckinghamshire Light Infantry.
Captain A. J. Hannah, I.A.
Squadron-Leader G. C. Bailey, D.S.O., R.A.F.
Colonel H. Graham, late 16th Lancers.
Captain A. K. Betty, D.S.O., R.N.
Flight-Lieutenant H. G. Crowe, M.C., R.A.F.
Captain C. L. B. Duke, M.C., R.E.
Lieut.-Colonel C. S. Davies, C.M.G., D.S.O., Leicestershire Regiment.
Flight-Lieutenant A. P. M. Sanders, R.A.F.
Captain O. H. Dawson, R.N.
Major H. T. Molloy, D.S.O., I.A.
Captain E. W. D. Vaughan, M.C., I.A.
Lieutenant A. W. Wyatt, Hampshire Regiment.
Major G. C. Pullman, O.B.E., 6th Battalion East Surrey Regiment (T.A.).
Captain R. F. S. Manduit, M.C., 4th/7th Dragoon Guards.
Lieutenant T. E. B. Manders, R.N.
Flight-Lieutenant W. M. Yool, R.A.F.
Lieutenant O. V. C. Meysey-Thompson, R.A.
Captain A. W. B. Becher, M.C., King's Own Yorkshire Light Infantry.
Captain C. B. Cockburn, O.B.E., R.A.S.C.
Captain J. B. H. Doyle, O.B.E., R.E.
Captain W. A. M. Stawell, M.C., R.E.
Squadron-Leader C. F. Gordon, O.B.E., M.C., D.F.C., R.A.F.
Captain T. E. Longridge, O.B.E., R.A.S.C.
Captain F. O. Cave, M.C., Rifle Brigade.
Captain N. M. Goodman, M.R.C.S., L.R.C.P., R.A.M.C., Reserve of Officers.
Rear-Admiral M. S. FitzMaurice, C.B., C.M.G.
Lieutenant J. P. Huffam, V.C., Duke of Wellington's Regiment.
Lieutenant S. J. A. Longley, I.A.
Lieutenant R. E. Moody, Royal Inniskilling Fusiliers.
Captain D. R. Tittle, King's Own Royal Regiment.
Major L. C. B. Deed, D.S.O., R.E.
Captain M. G. Baillie, late R.F.A. (T.A.).
Flight-Lieutenant J. S. Chick, M.C., R.A.F.
Lieutenant R. K. Wilson, R.A.M.C. (Reserve of Officers).
Captain C. R. Chambers, M.C., Prince of Wales's Volunteers.
Captain E. L. Harrison, I.A.
Captain D. B. Mackenzie, I.A.
Major the Rev. A. Madden, D.S.O., M.C., Canadian Chaplain Service.

Lieutenant A. G. Miller, R.A.
 Captain W. H. Parkinson, Gloucestershire Regiment.
 Captain G. C. C. Royle, C.M.G., R.N.
 Captain K. G. Buchanan, M.C., The Royal Scots.
 Captain B. E. W. Edmondson, I.A.
 Lieutenant E. F. Tucker, I.A.
 Colonel R. O. Paterson, O.B.E., Royal Marines.
 Captain G. B. Howell, M.C., I.A.
 Lieutenant A. R. Boyce, R.E.
 Lieutenant B. Baseby, Royal Marines, retired.
 Wing-Commander A. V. Bettington, C.M.G., R.A.F.
 Sub-Lieutenant C. A. R. Charnaud, R.N.
 Captain A. F. Harding, M.C., Somerset Light Infantry.
 Captain H. B. Hibbert, King's Own Yorkshire Light Infantry.
 Lieut-Colonel V. N. Johnson, D.S.O., Gloucestershire Regiment.
 Captain H. M. Tulloch, I.A.
 Captain C. F. Hill, M.C., Suffolk Regiment.
 Captain C. S. S. Tuppen, Royal Marines.

IV. Journal.

The Secretary will in future be responsible for the Military Notes, Reviews and translations in the JOURNAL.

V. Lectures.

The Lecture Card for the Session 1924-25 is approaching completion, and will be issued to Members towards the end of September.

VI. Museum Catalogues.

The Seventh Edition of this Catalogue has now been completed and printed. Members wishing for a copy should remit the sum of 2s. 9d., which includes postage; it will not be on sale at the Museum entrance until the Sixth Edition is entirely exhausted. The new edition makes this publication complete, and has an addition of 100 pages of matter.

VII. The New Zealand Sheepowners' Fund.

The New Zealand Sheepowners have established a fund and endowed a suitable property on the coast of the North Island, N.Z., for the purpose of training 100 boys in the management of land and stock; these boys must be sons of officers or men of the Royal Navy or Mercantile Marine who died, or suffered disability, during the War, and between the ages of 14 and 17 years. Their outfit and passages are paid by the fund; there are still vacancies to be filled. For full particulars, address:—

N.Z.S.F. Boys' Farm,
 c/o The High Commissioner for N.Z.,
 415 Strand, W.C. 1.

VIII. The Museum.

The amount taken for admission to the Museum during the past quarter was :—

£64 10s. od. in May.

£106 1s. 6d. in June.

£112 6s. od. in July.

ADDITIONS.

- (7817) A large bass Drum of the Waterloo period, which belonged to the Royal South Gloucestershire Light Infantry.—Given by Messrs. Hawkes & Son.
- (7818) A tenor Side Drum of the Waterloo period, which belonged to the East Kent Regiment of Militia.—Given by Messrs. Hawkes & Son.
- (7819) A brass Kettle-drum taken from Osman Digna at Tamai in 1884.—Given by Messrs. Hawkes & Son.
- (7820) Specimens of Sardine and Petit-pois Tins in which the Boers contrived to obtain fuzes and detonators during the South African War, 1899–1902. These tins were consigned in cases to merchants in South Africa described as food. In order to defeat the Customs examiners, the top layers of tins were correct, also about one in every three tins contained sardines and peas, but the weight of a box raised suspicion and the trick discovered. The ammunition was made in France, but it probably did not come direct from that country.—Given by Major-General R. Bannatine-Allason, C.B., C.M.G.
- (7821) General Officer's Sash, which formerly belonged to the late Major-General R. J. C. Marter, C.B., A.D.C. to H.M. Queen Victoria, who, when commanding the King's Dragoon Guards, captured Cetewayo after the Battle of Ulundi (August, 1879), where the Zulus were completely defeated.—Given by the Misses Marter.
- (7822) A Back Staff, the invention of Captain Davis about 1590, and at times called the Davis Quadrant. To use the instrument the shade vane is set on the 60° arc at an even degree which is less by about 10° or 15° than the complement of the sun's altitude or zenith distance is judged to be. The observer then turns his back to the sun (hence the name), lifts up the instrument and looks through the sight vane, raising or falling the quadrant until the shadow of the upper edge of the shadow vane falls on the upper edge of the slit in the horizon vane. If the horizon is seen through the said slit, the observation is exact, and the vanes rightly adjusted. The observer notes how many degrees and minutes are cut by the upper edge of the sight-vane. The sum of the readings at shadow and sight vanes is the sun's zenith distance.—Given by Captain Brien Money, D.S.O., R.N.
- (7823) A Quadrant, by Elias de Larné of Guernsey, dated 1763. The inventor of the instrument was Hadley, *circa* 1730.—Given by Captain Brien Money, D.S.O., R.N.

- (7824) A Nocturnal, an instrument formerly used at sea to obtain the time. To use it, place the finger marked G.B. against the date on the lower plate, holding it by the handle, look at the Pole Star through the hole in the middle, and work the big arm until the pointers of the Great Bear show on the edge. The reading on this edge on the upper plate gives the S.A.T. at the moment. The instrument can be used in a similar manner with the bright star (Kochab) of the Small Bear. There is some doubt whether this instrument is correct.—Given by Captain Brien Money, D.S.O., R.N.
- (7825) Helmet Badge of the Royal Midlothian Cavalry, worn prior to 1873.—Given by Major-General G. G. A. Egerton, C.B.
- (7826) A Naval General Service Medal, with clasps for Egypt and Trafalgar (with Miniature), and a Justice of the Peace badge for Westminster, which belonged to Captain G. Bague, R.N., J.P., who served at the taking of Genoa (1800), in the operations on the Coast of Egypt (1801), the blockade of Cadiz, and at Trafalgar in the "Colossus" (1805), where he was wounded; was present at the reduction of Santa Maura and defence of Scylla (1810), and at the fall of Genoa (1814). Died in 1856.—Given by Miss Fanny Crosbie.
- (7827) Two Miniatures of Captain G. Bague, R.N., as a Midshipman and as a Naval Lieutenant.—Given by Miss Fanny Crosbie.
- (7828) Sword of Captain G. Bague, R.N., who served at Trafalgar.—Given by Miss Fanny Crosbie.
- (7829) A Turkish Scimitar given to Captain G. Bague, R.N., by the Pacha of Egypt, in gilt ornamental sheath, about 1802, as a token of his friendship and esteem.—Given by Miss Fanny Crosbie.
- (7830) Officer's uniform of Queen Victoria's Own Corps of Guides, worn up to 1914: full dress tunic, dress overalls, undress jacket, shoulder and sword belts.—Given by Colonel Bruce Hay, C.M.G., O.B.E., D.S.O., General Staff.
- (7831) The German Warrant appointing Liman von Sanders a General of Cavalry, signed by the ex-Emperor William, and dated 13th January, 1914. It was found in a building at Constantinople which had formerly been occupied by the Head Quarters of General von Sanders, the promotion having been given to him as a reward for his efforts in training the Turkish troops.—Given by Field-Marshal the Viscount Allenby, G.C.B., G.C.M.G.

IX. Official History of the War.

BATTLES OF YPRES.—The Director of the Historical Section (Military Branch), Audit House, Victoria Embankment, E.C.4, would be greatly obliged with any information which would show how the following places came by their names:—Glencorse wood; Railway wood; Beck house; Abraham heights; Jolting houses;

Cameron house; Tower hamlets; Inverness copse; Stirling castle; Dumberton wood; Bodmin copse; Clonmell copse; Shrewsbury forest; Bass wood; Battle wood; Maple copse; Zouave wood; Birr Cross roads; Observatory wood; Y. wood; Mouse Trap farm.

X. Naval Notes, Correction to.

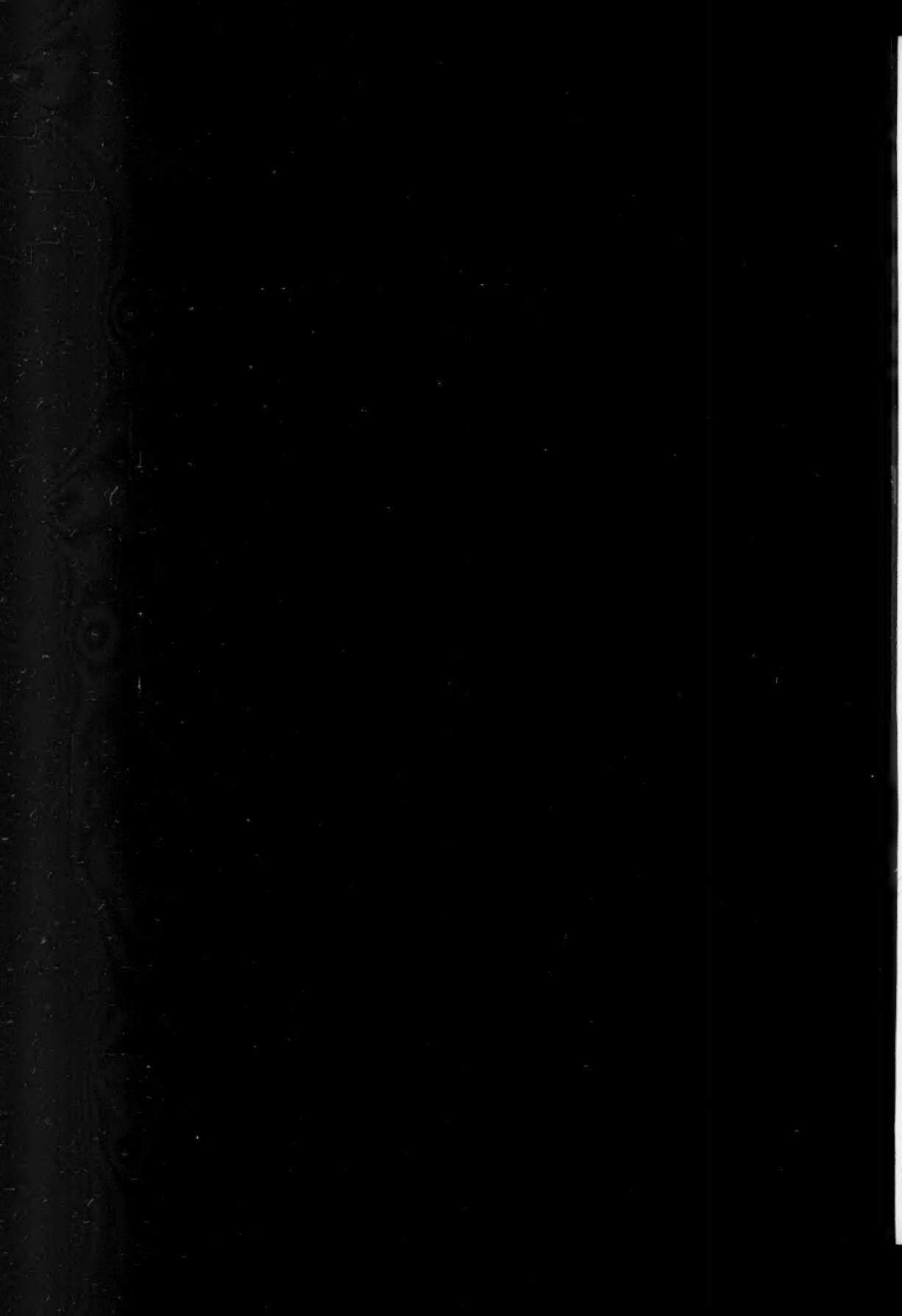
In the Naval Notes of the JOURNAL it is wrongly stated that Vice-Admiral Dumesnil is the new minister of marine in Monsieur Herriot's Cabinet. The new minister is Monsieur J. Dumesnil, a deputy for the Seine-et-Marne. This mistake was not detected before the naval notes were sent to press.



ERRATA.

Page 465, line 3, *for* "Rear-Admiral H. L. Mawbey, C.B., C.B.O.," *read*
"Rear-Admiral H. L. Mawbey, C.B., C.V.O."

Page 499, line 3, *for* "Captain H. N. Birch-Reynardson," *read*
"Captain H. T. Birch-Reynardson."



THE JOURNAL
OF THE
Royal United Service Institution.

VOL. LXIX.

AUGUST, 1924.

No. 475.

[Authors alone are responsible for the contents of their respective Papers. All communications (except those for perusal by the Editor only) should be addressed to the Secretary, Royal United Service Institution.]

**THE VALUE OF CIVIL AVIATION AS A
RESERVE TO THE ROYAL AIR FORCE IN THE
TIME OF WAR.**

By AIR COMMODORE R. H. CLARK-HALL, C.M.G., D.S.O., R.A.F.

On Wednesday, 20th February, 1924, at 3 p.m.

AIR VICE-MARSHAL SIR W. G. H. SALMOND, K.C.M.G., C.B., D.S.O., in
the Chair.

LECTURE.

INTRODUCTORY.

THE views which I shall lay before you to-day are my own personal ones only, and do not claim to represent the official opinions of the Air Ministry or the Air Staff.

My object is to develop the conception of civil as a reserve for Service aviation. My use of the term "reserve," perhaps, needs some preliminary definition. As commonly applied to the fighting services, the word means little more than men in uniform—man power, in fact. But as I propose to use it, it will cover also reserves of material, means of manufacture of material, design, research, experiment—anything, in fact, which tends to make the fighting service more efficient, and which may be accumulated or developed in the development of civil flying.

What I have to say falls in three parts. First, I shall draw for you a picture of an air force in war, in order to show what it requires in the way of reserves. Then we shall look at civil aviation as it is to-day, and see to what extent it provides such a reserve, and in what other ways it assists the fighting service. We shall find, I am afraid, that it does, in fact, provide little or no reserve. In the third part of my lecture I shall try to survey the future in the light of the past, and hope I may succeed in convincing you that, whatever may be said of the present, civil aviation is bound to grow, and to form, in the future, a valuable reserve in the fighting service.

I. RESERVE REQUIREMENTS OF AN AIR FORCE

The Functions of a Reserve.—The main functions of a reserve for any service are :—

- (i) To place peace establishments on a war strength.
- (ii) To replace war wastage until *personnel* enlisted after mobilisation are trained.
- (iii) To increase the war strength of the force by the formation of new units.

And for these purposes officers, men, and material are all requisite.

We will translate this into a concrete form and see what it means in actual numbers. Let us consider a force of 1,000 aeroplanes—by which I mean a force with an establishment of 1,000 service aircraft—in the fighting line, which day by day will be kept up to that number, quite apart from aircraft in training establishments or in subsidiary theatres of war.

I take this figure of 1,000 service aircraft because it simplifies the translation of percentages into numbers. Moreover, it is by no means improbable that this country will possess such a force within ten years or so. It is smaller than the force employed on the western front during the summer of 1918, which numbered 1,600 aeroplanes.

In annual cost it would be roughly equivalent to a navy about half or one-third of the size of the present British navy—or to an army which could put into the field a body such as the expeditionary force which we sent over to France in 1914. This rough generalisation as to cost enables us to take the statements of alarmists or enthusiasts with a grain or two of salt. I am thinking of the gentlemen who provide imaginary future enemies with thousands and thousands of aircraft regardless of the cost, or who tell us that many hundreds of aeroplanes can be built for the cost of one battleship—a statement which may be literally true, but takes no account of upkeep and overhead charges, and is, in effect, completely misleading.

Flying Personnel.—An outstanding feature of air warfare is the very small proportion of the *personnel* which may be expected to suffer appreciably from war casualties. The ground *personnel* may fall sick, be bombed, be shelled at long ranges, sometimes even be captured by a

surprise advance of ground forces. But it is not unreasonable to expect that the percentage of loss from all those causes will be trivial.

The only part of the *personnel* which suffers seriously from casualties is that small proportion actually employed on flying duties—that is to say, the pilots, observers, gunners or other members of the crews of aircraft. Taking the statistics of air work on the western front in 1914–1918 as our basis of calculation, it is not unreasonable to expect casualties in a war of intensive air fighting to average about 25 per cent. per month.

My imaginary force of 1,000 aeroplanes would be manned by a flying *personnel* which must obviously include 1,000 pilots; replacements would, therefore, be required at the rate of 250 pilots per month. Now, at the present moment, the total number of civilian pilots holding current licences in this country is 131. If they were all fit and available for service flying they would be enough to replace two weeks' casualties. It is, of course, not quite fair to ask what civil aviation in its present state could do for an imaginary air force some two or three times the size of our present one. But I think the figures are sufficient to show that the wastage of pilots in war cannot be made good in this way for many years to come.

If, then, the number of pilots employed on civil aviation is unequal to more than the replacement of a few weeks' casualties, it follows that there will be none available for expansion.

Moreover, we must not overlook the fact that all these pilots will not be immediately available for war work. The regularly employed civilian pilot must always possess the very highest standard of skill and proficiency in the work on which he is employed—that is to say, for example, the handling of aircraft and navigation. But there are other matters in which he must be proficient before he can take his place in a fighting unit. Formation flying and manœuvring, air fighting, bomb-dropping, all require a considerable amount of training. Only those who belong to the regular reserve and have recently undergone a period of service training will be immediately available. It is to be hoped, however, that the majority of civilian pilots will always come under this heading.

Ground Personnel.—There are, as I have already pointed out, few casualties amongst the ground *personnel* of an air force. The ground *personnel* of civil aviation will therefore not be required for replacing war wastage, and are available for expansion.

Let us consider for a moment how the air force ground *personnel* is composed. About 50 per cent. of the *personnel* of a squadron or *dépôt* never come into contact with aircraft at all—e.g., motor transport drivers and the fitters who keep the transport in order, working party for odd jobs about the unit, clerks, cooks, butchers, officers' servants, sanitary party, etc. All these can be provided from the general mass of population.

Another 25 per cent. are skilled workers, but need not have an

intimate knowledge and previous experience of aircraft; such are carpenters, turners, blacksmiths, etc., employed on general work in the squadron. We have for this class an ample recruiting ground in the engineering industries of the country.

The remaining 25 per cent. are men who must have actual experience and an intimate knowledge of aircraft and their accessories. They are the carpenters and riggers who work on the aeroplane structure, the engine fitters who look after the engine, the fabric workers, storekeepers, etc. It is for the expansion of this section only that we need look particularly to civil aviation. Without doubt, the men we should obtain in this way would be of the very highest skill and experience. But at present their number is small—probably not more than a couple of hundred; or less than the *personnel* in this category of half a dozen squadrons.

Aircraft.—It is not, I think, an exaggeration to say that aircraft employed on civil aviation to-day would be of little or no value as a reserve for war purposes. The 87 licensed aircraft in this country at the present day are of no less than 42 different types, using 21 different types of engine.

Quite apart from any consideration of the suitability of individual machines for war purposes, this diversity of type makes their incorporation into the fighting service a practical impossibility. We know from experience—and, indeed, it is almost self-evident—that a squadron without homogeneity of type cannot be run efficiently.

But in the distant future there will be a tendency, if only on the score of economy, towards homogeneity of type. It may then be possible to use civilian aircraft in war. The qualities of a transport machine are not dissimilar from those required in night-bombing or troop-carrying aircraft—viz., slow landing speed, good view, weight-lifting capacity, reliability, but only comparatively low ceiling and moderate speed.

Aircraft Construction Resources.—It is in the war wastage of aircraft that we are faced with one of the greatest difficulties, particularly during the early months of a war. Experience on the western front showed that in intensive air fighting the casualties to machines from all causes (that is to say, normal crashes, crashes on bad aerodromes, fair wear and tear, fighting in the air, A.A. fire and bombing attacks upon the hangars) amounted to 40 per cent. per month, or 480 per cent. per annum. This takes no account of casualties which are repairable by service squadrons and depôts.

In peace time, on the other hand, experience shows that the wastage amounts only to about 25 per cent. per annum, or approximately 2 per cent. per month. It follows naturally that the peace-time output of service aircraft is sufficient only to make good this 2 per cent. per month. We find ourselves, therefore, on the outbreak of hostilities, confronted with a monthly loss of 40 per cent. and a monthly supply of only 2 per cent.

Now, it is obvious that under these conditions you have got a situation which has to be met in two ways. Not only must you multiply

your production twenty-fold, but you must also be able to draw on a large reserve of aircraft during the period in which this multiplication of output is being effected.

In order to demonstrate what I mean, and the importance of the question, I have prepared two tables for my imaginary force of 1,000 aeroplanes, showing the kind of way in which the situation would have to be met.

Table No. 1 assumes that the construction industry in peace time depends entirely on service orders. Table No. 2 assumes that it depends equally on service orders and orders from civilian sources.

The estimates of the rate at which output can be multiplied (in left-hand columns) are, I must admit, largely conjectural. The published figures¹ show that, from the outbreak of war in 1914, it took us something like a year to work up from an output of practically nothing to 200 a month. In my table No. 1 I have assumed that from an initial output of 20 this figure will be reached in about $4\frac{1}{2}$ months. To work up from an output of 200 a month to 600 a month took approximately another year; I have assumed that this will be done in another four months. I do not really know whether it is optimistic or pessimistic to suppose that growth in the future can be expected to be three times as rapid as it was in the past. Nor, if I were in a position to give a really accurate estimate, would it be wise to publish such figures. The point which I wish to bring home to you by a comparison of the two tables—namely, that civil aviation increases the potential resources of the aircraft industry—would stand out just as clearly whether you multiplied my estimate by 3 or 4 or divided it by the same numbers.

TABLE NO. 1.

Losses and supply of aircraft for a force of 1,000 aeroplanes based on a peace output of 2 per cent. per month and war losses of 40 per cent. per month. Manufacturers depending on service orders only in peace.

—	War Losses.	Factory Output.	Result of Month.	Cumulative Results.	
				Deficiency of Supply.	Excess of Supply.
First month: No increase in output... ..	400	20	— 380	380	—
Second month: Increase to two times peace rate	400	40	— 360	740	—
Third month: Increase to three times	400	60	— 340	1,080	—
Fourth month: Increase to six times	400	120	— 280	1,360	—

¹ "Statistics of military effort of British Empire during the Great War." Published by H.M. Stationery Office.

420 CIVIL AVIATION AS A RESERVE TO THE R.A.F. IN TIME OF WAR

—	War Losses.	Factory Output.	Result of Month.	Cumulative Results.	
				Deficiency of Supply.	Excess of Supply.
Fifth month : Increase to twelve times	400	240	— 160	1,520	—
Sixth month : Increase to twenty times	400	400	0	0	0
Seventh month : Increase to twenty-five times	400	500	+ 100	—	100
Eighth month : Increase to thirty times	400	600	+ 200	—	300

You will see that not until the end of the sixth month does supply catch up with loss, and that a reserve of over 1,520 aircraft—that is to say, about 150 per cent. of the establishment—must be kept to bridge this gap if squadrons are to be maintained at full strength. And unless an even larger reserve than one of 150 per cent. were kept, there could be no thought of expansion by the formation of new squadrons during this period of six months whilst the output was being increased.

But it is undesirable for a number of reasons to keep a larger reserve of aircraft than is absolutely necessary—

- (i) They deteriorate in store. If a reserve of 150 per cent. is being used up at a peace consumption rate of 25 per cent. per annum, each aeroplane would be stored for six years.
- (ii) There is expense in keeping stored machines efficient and introducing into them from time to time the modifications which actual flying experience inevitably makes necessary.
- (iii) Stored machines may become obsolete before they are used up. There is consequently a danger that on the outbreak of war the reserve may prove to consist largely of obsolescent aircraft.

Nevertheless, however undesirable a reserve may be, if the aircraft construction industry depends on Government orders for service aircraft only, we have no choice but to keep a large reserve and wait for several months before there can be expansion.

If, on the contrary, the construction industry depends on a healthy and flourishing civil aviation in addition to service orders, it will be possible not only to reduce the ready reserve of service machines but also to start expansion at an earlier date. The reason for this is that the plant and skilled *personnel* being available and the nature of the work very similar, constructive energy can be rapidly transferred from civil to war machines.

I have endeavoured to show in Table 2 the advantages that would be gained if, under conditions otherwise the same as those for Table 1,

the output of civil aircraft was equal in quantity to that of service machines. The table assumes that on the outbreak of war production of the former is immediately replaced by production of the latter.

TABLE NO. 2.

Losses and supply of aircraft for a force of 1,000 aeroplanes based on a peace output of 2 per cent. per month and war losses of 40 per cent per month. Manufacturers producing as many civil as service aircraft.

—	War Losses.	Factory Output.	Result of Month.	Cumulative Results.	
				Deficiency of Supply.	Excess of Supply.
First month: No increase in output... ..	400	20	- 380	380	— ¹
Second month: Increase to two times peace rate	400	80	- 320	700	—
Third month: Increase to three times	400	120	- 280	980	—
Fourth month: Increase to six times	400	240	- 160	1,140	—
Fifth month: Increase to twelve times	400	480	+ 40	—	80
Sixth month: Increase to twenty times	400	800	+ 800	—	480
Seventh month: Increase to twenty-five times	400	1,000	+ 600	—	1,080
Eighth month: Increase to thirty times	400	1,200	+ 800	—	1,800

A manufacturing industry enjoying the equal support of civil and service aviation would, therefore, give us the following advantages as against the conditions assumed in Table I. :—

- (i) It would be possible in peace time to reduce the reserve from 150 per cent. to about 125 per cent.
- (ii) Expansion would be possible a month earlier, *i.e.*, at the end of the fifth instead of the sixth month.
- (iii) Expansion would be more rapid: 1,880 machines would be available at the end of the eighth month instead of 300.

Aircraft Engines.—The problem of the provision of aircraft engines is one which runs on very similar lines, but I do not propose to bore you with statistical tables. It is sufficient to say that the war wastage

¹ It is presumed that change over from civil to service aircraft would not effect output of the latter in the first month.

of engines is not so high as the wastage of aircraft, but, on the other hand, the time taken to produce them is greater.

The difference between engines for civil and service aviation will, in all probability, not be great. Both must be characterised by reliability, lightness and simplicity.

The existence of a healthy demand in time of peace for the manufacture of aircraft engines will, therefore, enable the fighting service to reduce the number of reserve engines. It will also render possible a rapid increase in the rate of output when war has been declared and expansion is needed.

Summary.—We see, then, that in war we may expect :—

- (1) Casualties to flying *personnel* on such a scale that civil aviation is unlikely to be of great assistance.
- (2) Casualties to ground *personnel* so inconsiderable that the specially skilled *personnel* of civil aviation will form a valuable, though comparatively small body for expansion.
- (3) Casualties to aircraft and their engines so heavy that only a strong and healthy aircraft industry will be able to cope with the problem of replacement. The building up of such an industry is, therefore, probably the greatest service which civil aviation can render to the fighting service.

II. CIVIL AVIATION TO-DAY.

I have already pointed out that at the present day civil aviation affords but little reserve for the fighting service.

There are, to make a rough classification, three varieties of civil aviation.

Privately Owned Aircraft.—There are, first, those machines which are privately owned for sport or amusement. The number of such individually owned machines in this country is at present only 26, plus a score or so of light aeroplanes with engines of 10 h.p. or less.

Expense and risk are the factors which militate against any immediate and considerable increase in this number. Only persons of comparative wealth can afford to keep a full-size aeroplane, with the skilled attention it requires and the heavy expenses both of running and repair. Moreover, it is useless to pretend that flying is not still attended with a certain amount of risk, and this risk is magnified by conditions which normally obtain where machines are individually owned. The day has not yet arrived when the average man will take his wife and children for a cross country flight with the same equanimity as he will take them out for a run in his car. And compared with a car, aircraft suffer from the disadvantages of not taking you from door to door, and of being unsuitable for use at night. Until these drawbacks are overcome, flying on individually owned machines is bound to remain the hobby of a comparatively few rich and generally youthful enthusiasts.

The development of the light aeroplane or, as it is sometimes most

inappropriately called, the motor glider, will to a considerable extent reduce the expense; but the other objections will remain for many years.

Minor Companies.—Secondly, there are at present in this country a number of companies who earn their profits by taking people for joy rides at seaside places, or by providing what may be described as an air taxi service, as well as by aerial photography for business purposes, advertising, skywriting and similar side lines. They are for the most part working on material which they were able to buy from the aircraft disposal company after the armistice, at bargain prices which will never occur again. It is difficult to prophesy what future lies before this type of flying; at the moment it seems to be on the decline. The actual number of pilots they employ is 38, and the number of machines 45.

Transport Lines.—But the chief function of civil aviation is, and probably always will be, to provide regular services at definite times on definite routes.

What exactly is the gap that this branch of transport must aim at filling? It cannot hope to oust the steamship and the railway train from their functions of carrying the main mass of goods and passengers. Ton per ton, its freight rates are bound to remain far higher than theirs.

What it can and what it does do, in fact the whole purpose of its being, is to provide specially rapid transport where the passenger or consignor of the goods is willing to pay an extra rate for this rapidity. It stands to ordinary transport by land and sea in very much the same relationship as that which exists between the electric telegraph and the ordinary letter post.

There is and always will be a large number of people to whom rapidity of travel is important and a slight increase of cost a matter of little moment—business men, politicians flying to and from their numerous conferences (*vide* the Paris Peace Conference), officials and officers returning from abroad on leave, as well as travellers and tourists who adopt this means of transport for the pleasure of it.

There will also always be a proportion of goods and mails on which the consignors will be willing to pay a special freightage for the saving of a few hours or even, possibly, days. The Manchester Chamber of Commerce, for example, recently expressed the view that an air service to the Continent would be of considerable value for the rapid transport of sample goods and mails, as well as of passengers.

We see, therefore, that there is a definitely useful function which only air transport can fulfil. Unfortunately the British Isles, owing to their climatic conditions and their small area, do not lend themselves to its development. On our highly organised railway system, with its frequent express trains between the main centres of population, travel is already rapid enough for the great majority of people. To leave London after dinner and arrive in Edinburgh, Belfast or Dublin the next morning for breakfast, is all that can ordinarily be desired.

The first efforts, therefore, were wisely directed to establishing a service between London and Paris. This was a journey which could

thereby be reduced from 8 hours to 2½ hours. Moreover, passengers by air avoid the risk of a rough sea passage and the trouble and delay of embarkation between ship and train. Further routes were soon added, and regular services now run from London to Amsterdam, Brussels, Berlin, Cologne, the Channel Islands and Zurich. The last step has been the amalgamation of the four leading companies competing on these routes. As the result of the recommendations of the Hambling Committee they have been combined into one company, known as the Imperial Air Transport Company, with a capital of one million pounds, which is to receive a Government subsidy of a million pounds spread out over ten years.

It is improbable that this company for the first year or so will employ more than 30 aircraft, 20 pilots, 100 specialist aircraft mechanics, or that it will order from manufacturers more than 25 aircraft per annum.

Evidently, then, its direct and immediate value to the Air Force is slight.

The pilots are the equivalent of a few days' war casualties; the skilled specialist mechanics would suffice for two or three squadrons, and the demand made upon the aircraft industry, if my estimate is right, is only for an output of about two machines a month. If we add the pilots and the aircraft otherwise employed in civilian flying to those of this large organisation, matters are not much improved. As I have already mentioned, the total number of pilots holding current licences is only 131, the total number of machines is only 87, and includes 42 different types of aeroplanes and 21 different types of engines.

We must face the fact that civil aviation at the present day cannot constitute a reserve to service aviation, because it is not large enough. It is not large enough because it does not pay and only those lines are operated which the Government can afford to subsidise. Up to date the amount paid by the Government has been approximately double the passenger and freight revenue.

The immediate Problems of Civil Aviation.—It was, therefore, not in return for the building up of an immediate reserve that the Government undertook to subsidise the Imperial Air Transport Company, since the reserve is at present negligible, but in order to carry the industry over the experimental stage until it pays and can expand unaided. If and when it is able to pay—to stand on its own legs or (as perhaps I should say) to fly on its own wings—then expansion will be rapid, since air routes can be organised easily, rapidly, and with comparatively small expenditure of capital.

Why does it not pay now? For two reasons: it is not used enough, and the running costs are too high. It is not used enough because the public are not educated or accustomed to the new idea and because they do not consider it safe or reliable. We may look to see the public becoming educated to the use of air transport after a few years' successful running. That this process has already begun, is shown by the following

figures of the average daily number of passengers and weight of mails and goods carried between London and the Continent :—

					Passengers.	Mails and Goods.
1920	...	...	...	...	17	Not available.
1921	...	...	...	...	29	Not available.
1922	...	...	...	...	34	1·5 tons.
1923	...	...	...	...	41	2·2 tons.

It has to be admitted that the rate of progress is slow, but confidence will grow as safety is increased by more reliable engines and by better meteorological and navigational organisation. Reliability is also an important factor—the public must be assured of a regular service under all conditions of weather by day and by night. All this can only come of operating experience and such experience is now being gained.

Night-flying in clear weather can be developed with comparative ease. It is a matter principally of providing a series of lighthouses and emergency landing grounds along the route. In America such a route has been organised in connection with the transcontinental air mail service from New York to San Francisco.

But what is needed above all is the solution of that greatest group of flying problems—how to navigate, how to find your aerodrome, and last, but by no means least, how to get down on to it, in fog, when the ground is not visible from the air.

The actual flying of an aircraft in fog is difficult even for the most experienced pilots. When there is nothing to aid the eye, all sense of direction and balance is easily lost and the machine allowed to get into a dangerous position. There is still much to be done in the improvement of instruments to get over this difficulty.

Navigation in fog is possible by means of directional W/T. Doubtless most of you are conversant with this method. The aircraft sends a signal by W/T; two or more widely separated stations on the ground take bearings of direction from which the signal came; from these bearings the position of the aircraft is plotted and is communicated by W/T to the aircraft within a minute or so of the original signal. Already considerable progress has been made with this method. Recently an Instone air liner, flying between Croydon and Cologne in thick and foggy weather, flew without seeing either sky or ground for an hour and twenty minutes. Its position had been fixed periodically by this method, and when it emerged into clear weather it was in the place where it expected to be.

There still remains to be solved, however, the problem of finding and getting down on to the aerodrome. What the solution will be I do not venture to prophesy—visions of vastly improved directional W/T, kite balloons flown above the fog like buoys leading up a harbour, sound signals, the leader system of W/T, some method of clearing small areas of fog by electrical, chemical, mechanical, or even explosive methods pass through my mind. I am, at any rate, confident that the problem is not insoluble. With a sufficient incentive it will be solved, and I

believe that the desire of civil transport lines to afford a regular service will provide just the incentive which is needed. One day it will be possible for an aeroplane to fly from Croydon to Paris and alight on its aerodrome there with ease and safety without once seeing the ground.

That is one side of the commercial problem; the other is the reduction of running costs. The principle on which the Government grants the subsidy encourages such a reduction. They say in effect to the company: "To earn your subsidy you must fly a million miles—we do not care how many or how few aeroplanes and pilots you employ to do this, that is your business." The result is that in spite of the subsidy, the lines are run, like any other form of business, on a minimum of *personnel* and of material. The amount of work that is being got out of individual aircraft engines and pilots, exceeds what would have been thought possible a few years ago. The pilots fly 600 hours per year, the engines 1,000 hours, and aeroplanes 1,500 hours.

This form of subsidy, of course, militates against the immediate formation of any reserve. It would have been possible for the Government, in order to create such a reserve, to have insisted on the companies employing a specified number of pilots, ground *personnel* and machines. But it would have been a short-sighted and uneconomical policy, since, for the same expenditure of money, they could provide a greater number of aircraft and service *personnel*. No: the long-sighted, the sound policy, is that which has been adopted—the policy, that is, of encouraging the company to economy. Only by economical administration can our air transport be put on a commercial self-supporting basis. To achieve this at the earliest possible date is the important thing, irrespective of the reserve so provided for the air force in the interim.

Indirect Assistance.—There are other ways in which civil aviation will be of assistance to the air force, which I did not touch on in the first part of my lecture, as they cannot technically be regarded as a form of reserve. I think they can be properly described here, though they pertain less to civil aviation of the present than to that of the future.

Development of Air Routes.—The growth of air transport lines will compel the companies employed on this work to establish a series of aerodromes along the routes. Such aerodromes must provide suitable landing grounds both for day and night working and must contain facilities for minor repairs, storage for petrol, accommodation for *personnel*, and a meteorological service. They will stand in relation to the fighting air service much as do commercial ports to the navy. Along such routes the air force and in particular, reinforcements, will travel far more easily and swiftly than would otherwise have been possible, though we must not overlook the fact that such movement will only be possible over British territory in peace, or the territory of belligerents in war.

Showing the Flag.—As in the ship-building industry, we may be certain that those nations which run the most efficient and the most

widespread lines of air transport will attract to themselves orders for both civil and service aircraft from small or non-industrial countries which are without facilities for their manufacture. Orders given by foreign countries to our own manufacturers will help us to cope with the problem of increasing output in time of war, in exactly the same manner as orders from our own civilian firms, which I have already endeavoured to illustrate by the comparison of my Tables 1 and 2.

Aircraft and Accessory Design.—Though the actual types of aircraft required by the civil and fighting services may diverge, the latter aiming at performance, the former more at comfort and economy, many matters will be of equal interest to both—structural details, materials, wing curves, stability, durability, power of withstanding weather, etc. Improvements in all of these respects are sure to be made in civilian flying. They will not be ignored by the air force. It is instructive and relevant to recall what the navy owes to the merchant service—the steam engine, the screw propeller, the stockless anchor, the gyro compass, to name a few only.

Engine Design.—In engine design the two branches of aviation will probably continue to aim at the same objects. These objects are in the first place reliability and all that it means, and in the second, economy of weight and economy of fuel consumption. The fighting branch need these improvements because they will increase performance—the civil branch, because they mean greater load-carrying capacity and consequently larger profits.

III.—THE FUTURE—AND THE PAST.

Stages of Progress.—What will the future bring forth? It is interesting, and I think of value, to turn to history and glance at the development of those inventions which aimed at the same result as aviation, namely, increasing speed of intercommunication:—the railway, the steamship, the telephone, the submarine cable, and the motor-car.

All these inventions had to pass through three stages:—

- (1) The stage of *experiment*, nearly always accompanied by complete scepticism, ridicule and opposition.
- (2) The stage of *development*, when the main object is nearly always to obtain reliability and economical working.
- (3) The stage of rapid *expansion*, when reliability has been obtained and the general public has become educated to the advantages of the new methods.

*The Railway.*¹—The first railway (that between Stockton and Darlington) was opened in 1825. The idea was regarded with scepticism and

¹ Smiles's "Life of George Stephenson." (John Murray).

opposition. It was intended for the carriage of goods, and passengers were only carried incidentally. It was a commercial success from the start; but scepticism still greeted the idea of the railway next projected—namely, that between Liverpool and Manchester.

A friendly writer in the *Spectator* in 1825, after pointing out the advantages of the steam railway, went on to say :—

“ It is far from my wish to promulgate to the world that the ridiculous expectations of the enthusiastic specialist will be realised and that we shall see engines travelling at the rate of 12, 16, 18 and 20 miles an hour. Nothing could do more harm towards their general adoption and employment than the promulgation of such nonsense.”

In the *Quarterly Review* of the same year, another reviewer, dealing in a friendly spirit with the project of forming a railway to Woolwich, observes :

“ What can be more palpably absurd and ridiculous than the prospect held out of locomotives travelling twice as fast as stage coaches ! We should as soon expect the people to suffer themselves to be fired off upon one of Congreve’s rockets as to trust themselves to the mercy of such a machine going at such a rate. We will back Old Father Thames against the Woolwich Railway for any sum.”

One gentleman of some eminence declared that it has been proved impossible to make a locomotive go at ten miles an hour—“ if ever it was done, he would eat a stewed engine wheel for his breakfast.” He later filled the post of Government Inspector of Steam Packets.

Sir John Barrow, of the Admiralty, advising the supporters of the Manchester and Liverpool railway how to conduct their case in Parliament (1825), urged them to leave out any idea of carrying passengers, on account of the opposition it would raise—“ and for what ? some thousands you say, some hundreds I should say—in the year.” Yet within five years it was carrying half a million passengers a year.

Then came the period of development, when the railways were learning economy and regularity. To this second stage belong such inventions as the tubular boiler, the blast pipe, reduced consumption of fuel, better types of rails and tracks, new methods of signalling, etc. But this period was a short one ; owing mainly to the immediate success of the Liverpool and Manchester railway it merged almost at once into the period of expansion. Within ten years there were 1,300 miles of railway open ; in the next ten years this amount was multiplied by five, and in another 20 years by ten.

The Steamship.¹—The first steamboats were plying on the St. Lawrence in 1809, on the Mississippi in 1811 and on the Clyde in 1812.

¹ Chadwick’s “ Ocean Steamships.” (John Murray).

Numbers of sailing vessels early in this period were fitted with auxiliary steam power. One of these crossed the Atlantic in 1819. But, nevertheless, 16 years later we find, in 1835, a distinguished scientific man of the day, Dr. Lardner, in a lecture at Liverpool, saying :—

“As to the project, however, which was announced in the newspapers of making the voyage direct from New York to Liverpool, it was, he had no hesitation in saying, perfectly chimerical, and that they might as well talk of making a voyage from Liverpool to the moon.”

So we see that the experimental and sceptical stage lasted some 26 years.

Then came the process of development. The substitution of coal for wood fuel was the first and most important step. The Atlantic was crossed in 1838, three years after the lecture of the pessimistic Dr. Lardner. Iron superseded wood for constructional purposes. Lines such as the Cunard and Peninsular (1837) were formed, and ocean traffic was firmly established.

Finally came the period of expansion. In 20 years (1840 to 1860) the steam shipping tonnage of this country multiplied itself by five, reaching a total of one-tenth of a million tons. To-day it is 20 million tons.

*The Submarine Cable.*¹—The first cross-Channel cable was laid in about the early fifties. The enterprise was regarded at the time as a “mad freak” and “a gigantic swindle.” It only lived for a few hours. A Boulogne fisherman hooked it up and thought it was a new form of seaweed. When it was finally laid and working, *The Times* remarked that the jest of yesterday had become the fact of to-day.

There were many failures before cables came to be regarded as ordinary industrial undertakings. Three unsuccessful attempts were made to connect up with Ireland. The endeavour to go further afield aroused much ridicule. No less an authority than the Astronomer Royal, referring to the Atlantic cable, announced to the world “that it was a mathematical impossibility to submerge a cable in safety at so great a depth, and that, if it were possible, no signals could be transmitted through so great a length.” The scheme was denounced as a mad freak of stubborn ignorance, but the cable was successfully laid after many difficulties in 1858.

The development stage lasted about 12 years. Lack of reliability was one of the chief troubles to be overcome. But after the discoveries had been made that high tension current destroyed the insulation of the cable, and that breakages were due to the cables being laid too taut and being too fragile, progress was more rapid. Speed of transmission was also increased and better laying and testing methods evolved. The laying of the first cable to India completed this stage. After that, the

¹ “The Story of the Atlantic Cable,” by Charles Bright. (George Newnes).

science of constructing and laying cables was pretty definitely worked out.

The period of expansion then began, and led to the results which we can see in the submarine cable charts or in any atlas.

The Telegraph.—The telegraph, on the other hand, seems to have escaped the period of scepticism and ridicule, and stepped quickly into the second or development stage, in which it remained for some time. First used in connection with railway signalling (1837) it was not till nine years later that the first company for sending messages was started (1846).

Then came five years of improvement in working, and a progressive reduction of expenses. The industry began to make progress. Numerous companies were formed. Expansion began.

It was 14 years from the formation of this first company before the number of messages carried annually reached one million (1855). But as the public became educated to the new methods and demands for new lines were created, expansion came by leaps and bounds. Within 30 years the annual number of messages had increased to 50 million (1886-87) and within a further 20 years to 90 millions (1906-7).

The Telephone.—This invention received no welcome from the business world. It was considered an interesting toy. Bell was even called an imposter. *The Times* alluded pompously to it as "the latest American humbug," and explained elaborately why speech could not be sent over a wire, because of the intermittent nature of the electric current.

The Saturday Review said, even after it had advanced a considerable amount in America—

"It is inferior to the well-established system of air tubes."

It was hailed everywhere as a subject of ridicule—

"Mothers-in-law would be able to send their voices around the habitable globe."

This was the first or ridicule phase, and it lasted ten years. Then came the struggle for efficiency and reliability. The earth return with its electrical disturbances was done away with; underground cables were substituted for overhead wires, instruments, switchboards and receivers were improved; long distance work became possible. This period lasted some ten years, and then came the period of expansion.

Most of us can compare for ourselves the network of the modern telephone system, and the part the telephone plays in our lives to-day, with the telephone system as we knew it twenty years ago.

The Motor-car.—The motor-car is so recent an invention that I need not do more than remind you how it passed through the same three stages: the stage of experiment, when every car on the road was the object of ridicule and dislike; the stage of development, while it gradually achieved reliability and the public became educated to its use; and, finally, the stage of expansion when Henry Ford made his millions, and the streets of London became what we see them to-day.

Conclusion.—I have devoted some little time to sketching the development of these various inventions, because I think such a review is inspiring and encouraging to those of us who believe in a great future for flying. It is my belief that the history of air transport will pass through the same three phases. The stage of ridicule was a long one; but that is now safely behind us, and aviation has entered on the second or development stage. Regularity, safety, economy, the education of the public—these are the objectives to be reached before it can enter the third or expansion stage. But when this has happened, as happen it will, whether in ten years or twenty or more, it will not only supply civilisation with a rapid means of transport but will form an invaluable reserve to the fighting air force.

DISCUSSION.

AIR COMMODORE E. R. LUDLOW-HEWITT: I rise with some diffidence to take part in the discussion on such an able and interesting lecture, but I should like to suggest one point which the lecturer only alluded to in passing, and which is perhaps of greater importance than he claimed for it. The point is this, that whatever the numerical value of the reserve of civil aviation may be, we may at least expect something quite exceptional in quality. I think there is no doubt that at the moment our civilian pilots are far ahead of others in their profession. They have to do remarkably long and trying flights in all weathers, and, apart from their flying ability, their knowledge of the various routes should, in time of war, be of great value to us in the air force. Their experience of the continental, and possibly, later, the imperial, routes will be unique, and it will be experience which it is impossible for obvious reasons for royal air force pilots to acquire in peace time.

THE CHAIRMAN (Sir W. G. H. Salmond): I am sure we are all very grateful for the lecture which we have heard this afternoon, for it touches upon a question which exercises many of the critics of our air policy. There are just two matters on which I personally would have been glad if the lecturer had been able to deal with his views a little more fully. The first is that of the light aeroplane, and the other, which was quite excusably not dealt with by him, is that of airships. In regard to light aeroplanes, I believe there is a great future before them. I look forward to a time when civilian light aeroplane clubs will be formed throughout the country. Light aeroplanes are undoubtedly cheap, and we hope to get them cheaper still. This will facilitate flying for a great many people to whom it has seemed a more or less remote possibility on account of expense. I foresee the time when every town will have its own light aeroplane club, and young fellows will learn to fly in comparative safety, for these machines are very lightly loaded for their wing area and can, consequently, be flown and controlled at considerably lower speeds than the powerful heavily-loaded Service types we have to use in the royal air force, where high performance is essential. Should this come about, all over England there will be landing grounds which will be available for the training of pilots in the event of war.

Then as to airships. Airships have not arrived yet, but in the course of time they may. The advent of airships will lead to the establishment of air ports in different parts of the world, and these will be widely separated owing to the enormous distances airships can cover. Aeroplanes operating from these air ports, and utilising their ground organisation, will carry out the shorter range work of collecting and distributing the passengers and freight for the airships.

One of our troubles with regard to engines in civil flying is that civil aviation flies low. In military aviation we fly high. Civil engines require low compression; engines for military purposes, on account of the performance required at great heights, need a high compression, and, where possible, super-charging. On this account it is becoming more and more difficult to utilise the same engines for both purposes. From the point of view of the royal air force, there are, however, certain uses which can be made of civil aircraft as such. The lecturer has mentioned troop carrying. I might add to this, ambulance work, and communication work, such as ferrying, which took place in the last war.

With regard to the reduction in cost, one of the great troubles in civil aviation is the high insurance rates, but by developing means for getting over the fog difficulty, improving reliability, and overcoming the fire danger, we shall undoubtedly get cheaper insurance, and once we get cheaper insurance we shall get cheaper aviation.

The use of heavy oil is, we hope, coming forward soon; this will reduce the fuel cost for a given flight to about one-fifth of the present figure and will also reduce the fire risk and insurance. I would like you to remember that we are basing our opinion to-day on the state of civil aviation as it is at present, but if in the future it should take its place in the commercial world alongside the mercantile marine, we should have great air liners travelling throughout the world—a thing which appears very difficult to imagine now. The illustrations which the lecturer has given us from the railway, the steamship, and the motor-car tend to show that such a state of affairs is by no means the unlikely contingency some people imagine. When this time arrives we shall have to revise very largely our appreciation as to how much civil aviation can assist the royal air force in the future.

There is one other point I should like to make, and that is that nearly all types of military aircraft must have a high performance. Light loading per horse-power is a necessity if we want high performance. Heavy loading per horse-power is required in commercial aviation, and it is really on account of this difference that it is difficult to foresee how, under present circumstances, civil aviation as regards material can be of very much assistance to the military side of the air service, except for night bombing, troop carrying, ambulance and ferry work. However, with regard to what the lecturer said as to the value of the industry, once we came down to a period of imminent national danger, there can be no two opinions. The industry can be of incalculable value to us in this respect, and in addition to the considerations put forward by the lecturer, I think it is incumbent upon us to force forward as much as we can arrangements which will enable the industry to meet our requirements in the case of war as regards types in aircraft and engines in addition to what would be their normal output.

I now propose a hearty vote of thanks to the lecturer for the very able lecture he has given us.

The vote of thanks was carried by acclamation.

SIR EDMUND BARROW: I rise to propose a hearty vote of thanks to the Chairman for presiding at this lecture. His presence here is of special advantage to us in view of his great reputation as one of the most prominent airmen of this country. He has shown by presiding, and by his speech, the appreciation in which he holds the views that the lecturer has been able to put before us. We thank the Air Marshal for his presence here to-day.

This also was carried by acclamation, and the meeting terminated.

THE SUPPLY AND TRAINING OF OFFICERS FOR THE ARMY.

BY COLONEL THE HON. M. A. WINGFIELD, C.M.G., D.S.O. (General staff, War Office).

On Wednesday, 5th March, 1924, at 3 p.m.

LIEUT.-GENERAL SIR IVOR MAXSE, K.C.B., C.V.O., D.S.O., in the chair.

LECTURE.

SIR IVOR MAXSE, ladies and gentlemen.—The many different ways in which a commission can be obtained in the army make the subject rather a complicated one, but I will deal with it as broadly as I can.

First of all I will try and give you a general picture of our requirements and of the steps which are being taken to meet these requirements, and in this I am referring only to the regular army where the problem is, generally speaking, the same in peace and in war, because the acceleration of regular commissions in war is not great and is amply met by the increased competition which is certain to take place.

Shortly stated, the problem is that we require for the regular army, including the Indian army, some 650 new 2nd lieutenants a year—physically sound, of a high standard in character, with powers of leadership, with the best education to be had, and, as in other professions, containing a due proportion of the best brains in the country.

As regards the figure 650, conditions since the war are still abnormal, and as we have only recently ceased to suffer from the Geddes axe, there are no post war figures which can be taken as a reliable guide; but in spite of the abolition of units of all the older arms, the creation of new arms, such as tanks and anti-aircraft artillery, and the increase in signal units and in the establishments of officers in cavalry and infantry units, make the total peace establishment of officers since the war over 14,000, or practically the same as it was in 1913.

The average number of regular commissions given between 1908 and 1913 was 649, and I think we must assume that the proportion of wastage in the future will be the same as it was then.

A rather remarkable deduction from these figures is that up to 1914, in spite of the risks of foreign service and small wars, the average service of each officer was slightly over 22 years.

The various channels through which these 650 commissions a year have been and are to be filled are, as I have said, rather numerous and

complicated. At the present time they are : the cadet colleges of Woolwich and Sandhurst, the universities, the dominions, the supplementary list, and a new scheme from the territorial army. Various committees which have sat from time to time have considered methods of simplifying this situation, with a view either to abolishing the cadet colleges, and passing all candidates through the militia or whatever was in existence at the time ; or of abolishing other methods and making them all pass through the cadet colleges.

Practical calculations always proved that neither method by itself could do the job.

Woolwich and Sandhurst with a two years' course could produce about 470 a year and, apart from the expense of increasing this output to the full 650, in the years immediately preceding the war, as at present, there were not sufficient candidates to provide this number with a reasonable standard of competition.

The old militia or special reserve alone could not do the job, because, to have produced 650 regular candidates a year, each serving some three years in the militia, and with reasonable competition, there would have to have been more than 2,000 army candidates always serving in the militia, or more than the total requirements in 2nd lieutenants for that force.

Having several different methods gives us a wider selection, and the fact that not all have been educated in the same way is on the whole for the good of the service. The regular channel of entry through the cadet colleges is undoubtedly the best, but we welcome a proportion from the universities and through other channels.

In this, I gather from admiral Bernard's lectures, that we are rather different from the navy, who like to imbue all the officers with the " spirit of the navy " from an early age.

At the end of the South African war, 87 C.O.s were asked whether they preferred cadet or militia officers, and of these, 50 were strongly for the cadet, 17 were for the militia, and 20 said there was nothing to choose. The proportion was therefore well in favour of the cadet, but this view was by no means unanimous.

Another very strong argument for multiplicity of method is that many boys are unwilling definitely to choose their future career until they have completed their education and have had plenty of time to see what the world contains. Those that go to the cadet colleges must make up their minds before they are 18.

To my mind the crux of the whole matter lies in what was said by sir Ian Hamilton when he was A.G. in February, 1910 :—

" We are coming to the end of our tether as regards candidates from the limited class which has hitherto supplied the commissioned ranks. It is true that as householders, people belonging to that class are more numerous than they used to be, but their families are markedly smaller. And from the total of sons available, a larger number are now absorbed by business."

That tendency which sir Ian Hamilton noticed fourteen years ago, is considerably stronger to-day, both in the smallness of families and in the claims of business, and as we have got to fill the commissioned ranks of the army, whether we like it or not, we have got to attract candidates from outside the limited class from which our officers were drawn throughout the 19th century. That possibility was also referred to by admiral sir William Goodenough in the discussion of the navy lecture.

There are now more openings for the sons of gentlemen, and different views are held on business as a career, and these facts must be faced.

We hope that the public service will always appeal to the sons of officers and country gentlemen, but in these days of lower money values, country gentlemen and those with fixed incomes are having a very rough time.

The problem is a severely practical one, and we have got to get our officers from somewhere.

The territorial army and expansion for a great war.—Before going into the problem of the regular army in greater detail, I want to mention the territorial army, and the question of expansion for a great war.

Commissions in the territorial army are granted on the recommendation of county associations, and the only educational requirement before being commissioned is the possession of certificate A. gained in the O.T.C.

The O.T.C. was formed on the recommendation of a committee on the "Provision of Officers" which sat in 1907 under the chairmanship of sir Edward Ward, and it was designed to give elementary military training to a large number of school boys and undergraduates who might be expected to become officers in the event of mobilisation for a great war, and in his final despatch lord Haig bore witness to the great work which the O.T.C. did in preparation for 1914.

It was formed in two divisions; the junior division in the public schools, where practically all the units are infantry only, and the senior division at the universities, where there are units of all arms.

The junior division is in an exceedingly flourishing condition and numbers about 33,000 boys, and its main purpose is to give training leading up to the examination for certificate A.—the one qualification for a commission in the territorial army.

The senior division, since the war, has been passing through greater difficulties in regard to numbers, but is steadily getting over them, and it is designed to give higher and more specialised training, leading up to certificate B. A new scheme is just being brought out, under which in the event of a war in which the territorial army is mobilised, officer cadet units are immediately formed at the universities to take on the training of all candidates for T.A. or temporary commissions.

All undergraduates in possession of certificate A. will be eligible for commissions at once, and all others over the minimum age for enlistment can be enlisted at once in a "reception unit," and will then be transferred to the officer cadet units of the arms they wish to join, in batches of increasing size to meet the requirements of expansion.

By this means it is hoped that the enthusiasm for enlistment, which the best material in the country is certain to show, can be gratified; and that, at the same time, the waste of this fine material in the ranks, which occurred in the last war, can be prevented.

This provides the machinery for the greatest possible expansion, and that is all it is necessary to provide for in peace. The requirements for a great war cannot possibly be foreseen, but you will want officers at the rate of 5 per cent. of the men you expect to get.

The cadet colleges.—I will now come back in greater detail to the training of candidates for the regular army, that is of those who mean to make soldiering their life's profession, and I will take the largest and the best channel of entry first, namely, the cadet colleges.

A good many committees have considered the question of the cadet colleges from time to time, but it is only necessary to refer to the last two, namely, the Akers Douglas committee of 1902 and the Haldane committee of 1923. The question was also specially investigated by the Army Council in 1910.

The Akers Douglas committee sat at the end of the South African war and practically all the evidence was unanimous in showing great dissatisfaction with the state of education, both general and military, of officers as a class. One witness said: "It is no uncommon thing to find officers unable to write a good letter or draw up an intelligible report," and sir Evelyn Wood, who was then adjutant general, as well as lord Roberts, said that they were very dissatisfied with the education of officers as a class. There were no complaints of this nature after the late war.

It was found that the entrance examination was designed so as to encourage all the defects they mentioned. There were too many subjects, and candidates were allowed to count any marks they got without a qualifying minimum, which put a premium on cramming up a lot of unassimilated knowledge.

The question of having examinations at all, has been raised more than once. We all hate examinations and think they form a very imperfect method of selection. In 1910, the director of personal services of the day wrote a long memorandum against the examinations system and at the end said: "Finally, in justice to myself, lest in making the above remarks I may be thought to be an opponent of education, I should like to emphasise the fact that I hold no brief for the encouragement of ignorance. I am a thorough believer in the study of war and men, but I do draw a distinction between education and examinations, which appear to me to be as diametrically opposed to one another as darkness is to light."

I have given a lot of thought to this question, and cannot agree. Apart from its being the only fair method, there is no doubt that examinations do govern education; and the only way you can ensure the education you want is to set the right standard in the examination.

If you want a particular subject studied, get a question on that subject asked. There is no other way.

What has been the tendency, and the right tendency, of recent years, has been to bring the army entrance examination as far as possible into line with the university examinations, and so do away with the need for special preparation in the schools.

Not only does this keep army candidates on the lines of the best educational ideas of the time, but it is one of the first steps towards making it possible to widen the field of selection, which I have already mentioned, because it does not confine army candidates to the few schools where special army preparation exists.

The Haldane committee have strongly insisted on this point of view, and are now going to take the school leaving certificate of the Oxford and Cambridge joint board or equivalent as the qualifying examination, and have an additional competitive examination which needs no special preparation whatever. In fact, it is hoped that all schools will shortly be able to abolish their army classes, as some have done already.

Although we have stuck to the examination system in principle, we do go outside it as well, by allowing headmasters to recommend for nomination a certain number of boys who have shown outstanding qualities of character, although they cannot pass the qualifying standard. This system was first introduced in 1910, and all boys so recommended are interviewed by a selection board at the War Office.

Another innovation is being introduced into the new army entrance examination; this is that a large number of marks are to be allotted for "Interview and Record," and these marks will be allotted by a board arranged by the War Office. By this means you can temper examination by a certain amount of selection.

The age of entry is to be raised from 17½ to 18. Not only does this mean that general education at school is continued for six months longer, but it gives boys a greater chance of reaching positions of responsibility at school and so permits of more development of character.

Both at Woolwich and at Sandhurst, the course is being reduced from two years to 18 months, but the reasons for this are different at each college.

In order to give future engineer officers the very best training to be had, they are now going to do a post graduate course of a little over two and a half years at Cambridge and Chatham. It will include two full academic years at Cambridge, and the Chatham course will be fitted in at the beginning or end, according to the date at which they leave Woolwich, and also in the long vacations. Not only will this scheme cost money, but it will take the place of some of the more specialised training hitherto given at Woolwich, and for both these reasons it is necessary to reduce the course at Woolwich. Even now an R.E. officer will not join his unit for duty until about 4½ years after he first goes to Woolwich.

It was then thought that if young gunner officers could also be given a post graduate course for their more specialised artillery training, its,

might be possible to give all cadets at Woolwich the same training, and avoid bifurcation altogether, which is certainly desirable if it can be done. Hence, to save money for the other schemes and to keep both classes of cadets together, the course at Woolwich is being reduced to 18 months, and there will be a post graduate course for gunners at Larkhill, as well as for sappers at Cambridge and Chatham.

The reduction of the course at Sandhurst is partly for other reasons, but the Haldane committee would have recommended it in any case. Before the war, we used to get about 80 officers a year from the universities and about another 80 from the special reserve or militia. Since the war, we have been getting about 12 a year from the universities, and as there is no special reserve or militia, this source of supply has disappeared altogether. The maximum accommodation at Sandhurst is 700, and so with a two years' course the maximum output is about 350. With an 18 months' course, it is about 460. The reduction of the course was therefore a necessary measure, in order to provide a means of getting the officers we want. Of course, we have still got to fill it but that is another story, and I will explain our efforts to do that later on. If, in time, the supply from the universities reaches its pre-war figure, and the new T.A. scheme produces good results, we shall eventually be able to reduce the establishment at Sandhurst and so save the taxpayer money.

The report of the Akers Douglas committee, which, as I have already said, was drawn up at the end of the South African war, has been the basis of our training at Sandhurst for over 20 years; and as at that time cadets had been going straight from Sandhurst to active service, the evidence before the committee was very strongly in favour of the cadet being absolutely completely trained in the duties of a platoon commander before he joined his regiment, and the result was that this aspect of his training absorbed the whole of the time available in the course.

The Haldane committee have, and I am sure rightly, modified this policy, and they hold that much of the detail of a platoon or troop commander's work can be learnt, and better learnt, after he joins his unit. What they are anxious to do is to give him a wider education which will form a groundwork for further study throughout his whole career. An officer's education is, of course, never finished.

Besides a wider military education, a Sandhurst cadet now continues his general education, which used to cease entirely at 17½, and, besides English, he takes up one alternative subject—either physical science, mechanical science, history or a language, which he is given sufficient time and encouragement to study fairly deeply.

What is, perhaps, the most important aspect of an officer's education, namely, training in leadership, is paid particular attention to, and every cadet has ample opportunity of exercising authority in one way or another.

In addition to ordinary cadets, we have at Sandhurst some Indian cadets, for commissions in the Indian army, and 30 selected non-com-

missioned officers a year, who have been doing a one year's course, but who are now going to do exactly the same course as the other cadets. There is no doubt that the success of this scheme depends on commanding officers selecting only non-commissioned officers of a type really likely to make good officers.

The Universities.—Up to the present, candidates for commissions from the universities have had to fulfil three requirements :—

(a) They had to belong to a university which had instituted a board of military studies; that is, we only accepted candidates from Oxford, Cambridge, London, Edinburgh, Manchester, and McGill university in Canada.

(b) They had to take a degree in any subject, except music and theology.

(c) They had to have gained certificate "B.," which entailed three years' service in the O.T.C.

The effect of these three requirements, however, has been to limit very largely our field of selection. The first one merely had the effect of shutting out a number of possible candidates, because, although we limited our field to those universities having boards of military studies, we did not necessarily require a candidate to take up military studies. He might take up anything he liked, except music and theology. And, secondly, the certificate "B." qualification limited our field because it meant that a candidate had to decide on the army as his career almost as soon as he went up to the 'varsity, whereas many and possibly some of the best men only decide on their future career just before leaving the 'varsity.

To remedy this state of affairs has been a very difficult task, because, although it was necessary to widen the field of selection by taking candidates from universities who have no boards of military studies, yet we did not want to kill the military studies by giving no advantages to those that had. Similarly, although we want to accept candidates who only decide to join the army at the last minute, we must be fair to those who have done the whole prescribed course.

The scheme which has been adopted, aims at safeguarding all the various interests, by antedating commissions on a rather elaborate scale.

The system is to rest largely on nomination by the university authorities, who will nominate in 'grades' dependant both on educational qualifications and on 'record and character.'

The educational qualifications for the three grades are :—

- Grade I. ... 1st or 2nd class honours.
- Grade II. ... 3rd class honours.
- Grade III. ... a pass degree.

The antedates are worked out so that a grade I. man who has certificate "B.," etc., is antedated to his 20th birthday; a grade I. man who has

been in the O.T.C., but has not got certificate "B.," is antedated to 20½ years of age; and a grade I. man who has not been in the O.T.C. to 20½, and so on

This puts the real flier from a university just behind the best Woolwich or Sandhurst cadet, but in front of the less good one; and the moderate university man just behind the moderate Woolwich or Sandhurst cadet and so on.

A member of the general staff will attend every university board when candidates are being graded, and to ensure the interests of those universities having boards of military studies, these candidates will be given preference over those of other universities when the qualifications are equal.

The scheme is necessarily rather complicated, but when it is properly understood, it should prove very attractive, and full detail, together with a description of the pay and prospects of an officer's career, are being sent to the appointments board of every university, so that they can be put before any undergraduate who has not a definite career already mapped out for him. The rates of pay shown will include those of some of the highest posts. All circulars of pay which I have seen, have always ended with the pay of a lieutenant-colonel, and few people realise that it is possible to earn as much as £4,000 a year as a soldier. Of course, very few do it, but that is so in any profession.

The territorial army, the supplementary list, and the dominions.—The only methods of entry which I have not now touched on are the new territorial army scheme, the supplementary list of "probationers," and the dominions.

Regulations are being issued for the granting of commissions from the territorial army, under which a candidate must be 21 years of age, must have done two trainings with a territorial army unit, and a six weeks' attachment to the regular unit he wishes to join, and must also pass the Sandhurst final examination, but with a slightly lower percentage of marks than is demanded of a Sandhurst cadet.

This scheme is to take the place of the old special reserve method of entry.

By fixing the lower age limit at 21, the interests of cadets and university candidates have been safeguarded.

Probationers, who only exist in very small numbers for the household cavalry and foot guards, are on much the same footing, as they must also be 21 years of age and must pass the Sandhurst final examination; but they serve with their future regiments for two years instead of doing two territorial army trainings and the six weeks' attachment.

A limited number of dominion candidates are admitted to Woolwich and Sandhurst on the nomination of the secretary of state for the Colonies, the governor of Newfoundland, or the governors general of Canada, Australia, New Zealand, South Africa and the Irish Free State.

The university scheme is also to be extended to universities in the dominions, and we give a few commissions from the R.M.C., Kingston.

Causes of shortage and inducements.—The causes which have led to the present shortage of candidates for the army may be said to be:—

(a) Natural reaction due to the war. This must take its natural course and eventually die out.

(b) The Geddes axe and the possibility of still further cuts. The late secretary of state for war has given a definite assurance that the reductions in fighting units have come to an end, and stability is absolutely essential.

(c) Uncertainties as regards the present rates of pay being maintained. I hope this will shortly be removed—this uncertainty, I mean—not the pay.

(d) The impression in the minds of the public that the profession of officer in the army does not call for high qualities, and does not recognise ability to anything like the same extent as other professions.

This last is to my mind the most important of all reasons, and at the same time the hardest to remedy. If you try to get more candidates by reducing the standard, as has been done in the past, you only make the position worse. You must therefore demand a higher instead of a lower standard of education.

No one would attempt to make officers into bookworms, and any such attempt would certainly not succeed, but you cannot do away with the idea that the fool of the family is good enough for the army. The right way to recognise merit is to offer adequate inducements in the form of rewards which can only be gained by those who have ability and who work.

The crux of the whole question lies in accelerated promotion. This has always been nominally the system above the rank of major, but in practice it has been liable to work out at merely the elimination of the unfit. I am not yet at liberty to say what the new system is to be, but the army council have decided in principle to make it really effective, commencing in the lowest ranks, and this I may say, that qualities of character will play at least an equal part with those of intellect. Really effective accelerated promotion is in my opinion by far the best method of raising the army as a career, and thereby attracting the best type of candidate.

Accelerated promotion is not an entirely new thing, because we got the effect in the old days of purchase, though the acceleration then was not due to merit but to money. Some young officers reached high command at an early age, but they were not necessarily the right ones. Other officers, through lack of money or ambition, or both, served for many years in junior positions.

A regiment in India in the 'sixties had a captain with 47 years' service, who had served at Waterloo; at which time no other officer in the regiment, except the colonel, had been born. In the 24th Foot a father and son were serving together as captains, and the father allowed

the son to purchase a majority over his head. The son was shortly after killed on service, and the father succeeded to his majority as a death vacancy!

We do not want that sort of thing, but it is a fact that many of our greatest leaders achieved their biggest successes when they were comparatively young men. The duke of Marlborough was, as a matter of fact, one of the oldest, for he was 54 when he won the battle of Blenheim. The duke of Wellington at Waterloo was 46, lord Roberts marched to Kandahar at 48, and lord Kitchener reached supreme command at Omdurman at 47. I think we can recall others who would probably have done better than they did, if they had reached supreme command at an earlier age.

Other new inducements are of a more directly financial nature. For instance, there are to be a certain number of scholarships awarded to cadets and university candidates, to consist of £50 a year for five years after they join their regiments. These should be very popular, and, as in accelerated promotion, some are to be allotted for intellectual ability and some for qualities of character. Another important condition attached to these scholarships is that even if a wealthy man wins one, he has got to accept it and cannot pass it on to anyone else. I think this is important, because once it becomes the idea that they are only intended for very poor men, they are apt to lose in prestige.

Schools and county councils are also being asked to allow their exhibitions which are now tenable at universities, to be also tenable at the cadet colleges.

We already have extra pay for staff college graduates when not employed on the staff, and grants for proficiency in languages, so it may be taken that everything is being done to provide rewards for those who have the ability and industry to earn them.

The main underlying idea of it all is accelerated promotion, thereby giving opportunities to talent similar to those provided by other professions, such as the Bar.

No doubt these measures will take time to have their full effect, but I feel confident that the right policy is being pursued, and that a general reduction of standards, due to a panic over the shortage of candidates, would be a desperate remedy, which in the end would defeat its own object.

DISCUSSION.

(Owing to pressure on space it has not been possible to reprint in full the discussion which followed the lecture.—ED.)

MAJOR CHICHESTER and COLONEL CHESNEY pointed out that the long technical training of cadets for the royal artillery and royal engineers made it impossible for them to gain experience in leading and teaching men, until they had been four years in the service. COLONEL M. EARLE, C.B., C.M.G., S.O., referred to the "axeing" which was always necessary after a war; and said that it produced grievances amongst officers who had been given regular, permanent commissions in the course

of a war, and then deprived of them. The remedy was to grant temporary commissions only. The LECTURER in reply said that he did not think that the technical training of engineer and artillery officers could be shortened, and agreed with colonel Earle that too many regular commissions were granted during the war. The CHAIRMAN, closing the discussion, said that he did not think that the army could be said to be undemocratic in composition, and that it was not generally recognised that it had always been predominantly a poor man's service. Referring to accelerated promotion, he said that he believed the British race distrusted any system which left it in the hands of a single person to decide that one man was better than another. Votes of thanks to the lecturer and the chairman were carried unanimously.



THE ANTI-SUBMARINE CAMPAIGN IN THE MEDITERRANEAN SUBSEQUENT TO 1916.

By CAPTAIN C. V. USBORNE, C.M.G., R.N.

On Wednesday, 19th March, 1924, at 3 p.m.

ADMIRAL SIR SYDNEY FREMANTLE, K.C.B., M.V.O.,
(C.-in-C., Portsmouth) in the Chair.

THE CHAIRMAN :—Ladies and gentlemen : The chairman to-day was to have been admiral sir Somerset Gough Calthorpe. He was sent to the Mediterranean at a very critical period in 1917 when the submarine sinkings were a matter of the most anxious consideration, and he was responsible for the inception, preparation and execution of the anti-submarine operations which captain Usborne is going to lecture about to-day. I am very sorry he is not able to be here in person, but I will do my best to take his place. I am fairly familiar with the operations, because I had also two spells of six months each in the Mediterranean during the war. The lecturer was to have been captain Stephenson, who was in charge of large numbers of small craft which were engaged in anti-submarine operations in the Mediterranean, but he was unable to deliver the lecture as he is on active service with the Atlantic fleet. Captain Usborne played an equally prominent part with captain Stephenson in the execution of those operations. He spent a very large part of the war time in various parts of the Mediterranean, and is fully qualified by his experience and by his ability, to lecture to us on this most interesting subject.

I beg to introduce captain Usborne to you.

LECTURE.

SIR SYDNEY FREMANTLE, My lords, ladies and gentlemen. In the brief time available, I shall endeavour to confine myself to the facts of this campaign, and in general shall leave my audience to draw conclusions, without which the study of history has little value. History, like statistics, can be made to prove almost anything, and there are controversial points here, both sides using the same facts to prove opposite cases. The official history of this section of the war has not yet been written and I therefore feel it incumbent on me to present the facts impartially, and to resist the temptation to give a detailed account of any one part at the expense of a bird's eye view of the whole.

REVIEW OF THE MEDITERRANEAN AT THE BEGINNING OF 1917.

One thing is certain: up till August, 1917, the Mediterranean was a congerie of independent commands—all doing their best for their own areas, very efficiently, no doubt, but caring little about their neighbours' troubles—and the result was failure.

Subsequently the whole allied effort was united under one command—and the result was success.

By the convention of the 6th August, 1914, the supreme command in the Mediterranean was vested in the French. This was a generous gesture on our part, but it led us into terrible trouble, and cost us dear, I feel sure, in merchant shipping.

Let us take a general view of the Mediterranean at the beginning of 1917. Admiral Gauchet was then the commander-in-chief.

This officer, whom I knew personally, was a capable leader, a determined sailor, a hard worker, and had the confidence of his fleet.

He commanded the French battle fleet which, based on Corfu, watched and hoped for a sortie by the Austrian fleet.

His position was analogous to admiral Jellicoe's and, although he was in supreme command of everything that swam in the Mediterranean, that command was largely nominal, his real energies being concentrated on the well-being and readiness of his own not inconsiderable fleet.

Admiral Ballard had recently relieved admiral Limpus as rear admiral, Malta, and his sphere of command extended over a large tract of the Mediterranean.

Admiral Thursby was vice admiral commanding the eastern Mediterranean, and as the Dardanelles operations were by that time well over, his principal functions were:—

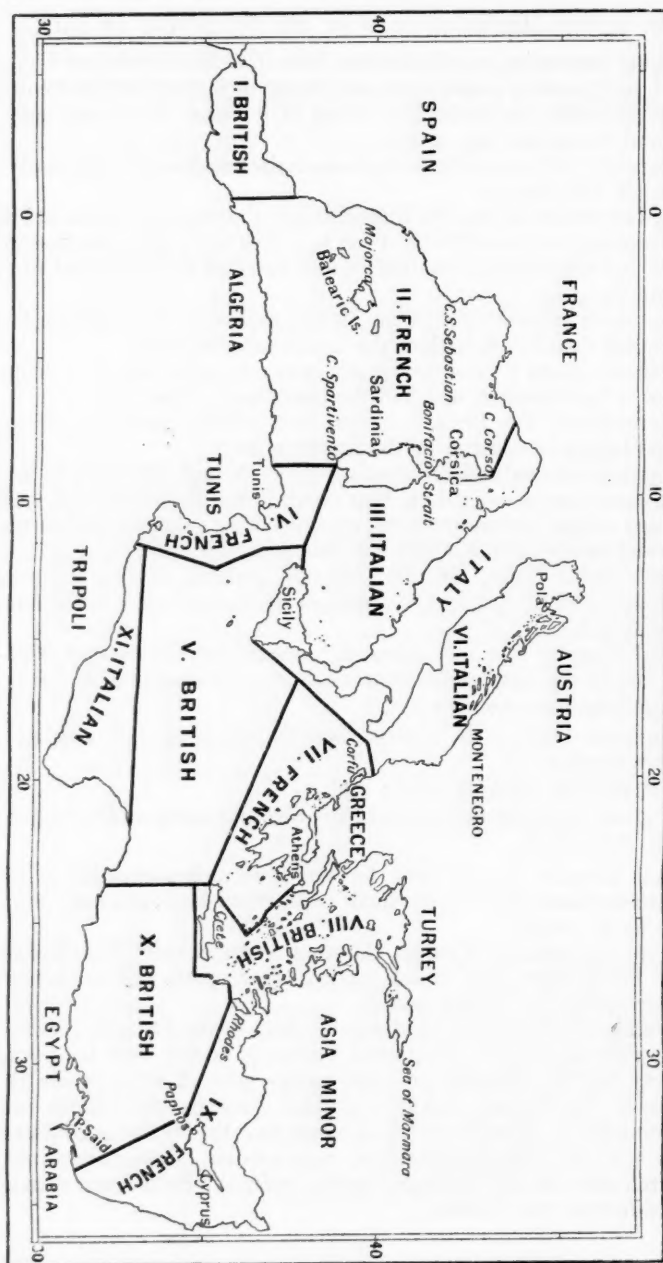
- to watch the Dardanelles and prevent the sortie of the "Goeben" and "Breslau";
- to blockade the Turkish coast; and
- to safeguard the communications of the Salonika army and to support their right flank.

Admiral Thursby was in luck, for the Dardanelles expedition had left him with the lion's share of the small craft, which he tenaciously clung to as long as he could.

In Egypt was admiral Wemyss, the commander in chief, East Indies, responsible for a large tract of sea, and, further north, a French rear-admiral responsible for Syrian waters.

The Italian commander in chief was the duke of the Abruzzi, who was relieved in February, 1917, by admiral Thaon di Revel, and Italy had responsibility for the Adriatic and the waters west of Italy, while the western basin was French and was divided between the Bizerta and Toulon commands. A small stretch of water near the straits of Gibraltar was under the rear admiral, Gibraltar, rear admiral Heathcote Grant; while a patch surrounding southern Greece, under the French commander in chief, completes the mosaic.

PATROL AREAS IN THE MEDITERRANEAN



There was a British admiral at Taranto—formerly commanding a fleet of battleships sent there by agreement with the Italians as one of the conditions of their entering the war, but the urgency of manning requirements had caused this fleet to dwindle to almost nothing.

This division into areas was decided at a conference on board the French flagship "Provence" at Malta in 1915, under the presidency of the then commander in chief, admiral de Lapéyrère.

The local "S.N.Os." were responsible for the safety of everything which floated in their areas, and were supposed to achieve this security by a system of fixed traffic routes which they had to patrol.

Merchant vessels, as a rule, sailed singly and were unescorted. Only troopers, and valuable ships such as oilers, frozen meat vessels, and ammunition ships had escorts.

The patrol system was a bad one, for the presence of patrols on the routes indicated those routes to the submarines. They could see the patrols long before they could themselves be seen, and they only had to dive until the patrol had passed, and then resume their lookout for merchantmen.

The routes in the Mediterranean were very long, the number of patrol craft, when allowance had been made for the ships required for sweeping approaches to harbours, was pitifully inadequate, and, so far as the unescorted majority of merchant vessels was concerned, the enemy was free to work his will.

The disposal of allied forces which were or might have been in use for anti-submarine work early in 1917 was as follows :—

District.	British.	French.	Italian.
Ægean ...	20 destroyers ... 4 torpedo boats 5 submarines ...	6 destroyers 8 torpedo boats 1 submarine	— — —
Adriatic ...	3 submarines ...	13 destroyers ... 3 torpedo boats 14 submarines ...	42 destroyers 60 torpedo boats 45 submarines
Escort forces	12 destroyers ... 44 sloops, gun- boats, armed boarding steam- ers, etc. 70 trawlers ...	44 destroyers ... 23 sloops, etc. ... 130 trawlers.	10 destroyers 12 sloops, etc.

Enemy Forces.—Against these, the enemy had in the Marmora and Black sea

8 destroyers; 7 torpedo boats; 6 submarines.

and in the Adriatic :

17 destroyers; 71 torpedo boats; 15 Austrian submarines;
26 German submarines.

It will thus be seen that a large proportion of the allied light craft were immobilised as far as the anti-submarine campaign was concerned, by reason of their duties as an integral part of the allied fleets watching the Austrian and Turkish fleets respectively.

These numbers do not (in the British case) include the minesweeping craft, mostly trawlers, large numbers of which had to be employed in the daily minesweep of the entrances to all important harbours. Neither do they include drifters, of which a large number were used as a mine-net barrage in the straits of Otranto, besides another large flotilla for the same purpose in the Ægean, and a few at each of the important harbours as local patrol vessels. These numbers were insufficient to protect the vast traffic of the Mediterranean.

An estimate of the British shipping in 1911 shows that out of a total of 4,000 odd steamers registered in the United Kingdom and engaged in foreign trade on a given date, 42 per cent. of the total were actually on voyages which would take them through the Mediterranean. This indicates pre-war conditions. In August, 1916, the transport department estimated that there were actually in the Mediterranean at one and the same time three hundred and fifty British steamers of 1,600 tons and above.

In the late summer of 1917, the number of steamers of all nationalities entering the Mediterranean from the west averaged about thirteen a day or four hundred a month, and this when a large amount of the through traffic had been diverted round the Cape. In addition, a large proportion of the French, Italian and Greek steamers and sailing vessels were always in the Mediterranean.

These figures show that in time of peace a vast amount of the trade of these islands passes through the Mediterranean, and the same holds good in war, as India, Australia, China, Japan, are at all times sources of supply of essential goods, or great markets, for British produce.

Furthermore, the armies of Salonika and Palestine had to be entirely supplied, and that of Mesopotamia partially supplied. Italy had to be completely furnished with coal and iron on a scale necessary, not only to support her population, but also to enable her to maintain a vast trench war on her northern front. All this formed an irresistible bait to the enemy.

The following curve shows the British ocean-going merchant ships captured or destroyed in the whole war area, and in the Mediterranean, including loss by mines. It shows that in the six monthly periods ending in January, 1916, July, 1916, and January, 1917, about half the British ships sunk were sunk in the Mediterranean.

ORIGIN AND GROWTH OF THE SUBMARINE CAMPAIGN.

The submarine campaign originated in the sending of a submarine to take part in the Gallipoli operations, and in the reinforcing of the Turks by small UB. and UC. boats, sent overland to Pola and thence by sea to Constantinople.

It was lieutenant commander Otto Hersing in U. 21 who left Germany on the 25th April, 1915, entered the Mediterranean through the straits of Gibraltar, and arrived at Cattaro on the 13th May. On the 25th May he sank the "Triumph" at the Dardanelles, and two days later the "Majestic," both by torpedo. Three small UB. boats and two mine-layers followed, and in the latter part of the year, five ocean-going boats, including U. 33 and U. 39 in September, 1915, and U. 38 in October, 1915.

Lieutenant commander Max Valentiner in U 38 lost no time in getting to work, and sank no less than fourteen ships, including the Italian liner "Ancona" (with a loss of two hundred and eight lives) on his way to Cattaro. Germany was not yet at war with Italy, and Austria-Hungary was obliged to accept responsibility for this act, which was in direct contravention to the pledge given to the United States in September, 1915, promising immunity to passenger ships not engaged in a hostile act. On 30th December, 1915, Valentiner torpedoed the "Persia"; her boilers blew up, and before her boats could get clear, the vessel sank with a loss of three hundred and thirty-four lives. The United States protested; Germany denied that any of her submarines were concerned, and Austria, being unwilling to act as scape-goat a second time, gave a similar denial.

In January, 1916, a pledge was sent to the United States that German submarines in the Mediterranean would only be allowed to destroy merchant ships and liners after the passengers and crew had disembarked. This order was enforced and was carried out, with exceptions, until unrestricted war began in 1917.

Austria was averse to her ally's ruthless methods, but was occasionally involved, since German submarines, when they showed a flag, showed the German or Austrian flag indifferently. When the order to sink hospital ships was issued, however, the German boats were directed not to fly the Austrian flag.

With the arrival of the five U boats, a Mediterranean submarine flotilla was formed, based on Cattaro and Pola. Pola and sometimes Fiume were used for refits and three-monthly overhauls, and Cattaro was the working base.

There was also a half-flotilla based on Constantinople, to which U. 21 and three or four small submarines belonged. These did certain patrols in the Ægean, but worked mainly in the Black sea. Beyrout and Tripoli, on the Syrian coast, were occasionally used for fuel, but, beyond these, there were no fuelling bases outside the Adriatic.

In this campaign, three or four conspicuous commanders stood out amongst a number of mediocre performers. Among the aces, the most notorious was Von Arnould de la Periere, formerly naval assistant to admiral Von Pohl at Berlin. He joined U. 35 in December, 1915. His usual beat was round the Balearics and Spanish coast, and he had a special method of his own. He always used gunfire, except against warships and transports, and had his 22-pounders replaced by a single 4'1, manned by a gunlayer he had picked up from the High Seas fleet.

He usually opened fire at 6,000 yards and closed gradually to 3,000, but not nearer, until the crew had abandoned ship. He then fired three shots into his victim at close range, one forward, one amidships and one aft, which usually sufficed to sink her.

Arnould showed great consideration for ships' crews, even after unrestricted warfare was declared; in this he was in marked contrast to Valentiner. Arnould's record cruise was in July and August, 1916, round Sicily, Tunis and the gulf of Lyons, in which he sank 91,000 tons of shipping. He started with nine hundred rounds of ammunition and only four torpedoes, of which he only fired one, at the "Waldeck Rousseau," and it missed.

Von Arnould remained in his old boat till early in 1918, when his bag amounted to: 2 warships; 1 auxiliary cruiser; 5 troop transports; 125 steamships; and 62 sailing vessels, in all 500,000 tons, one-fifth of the total Mediterranean losses for 1916-17.

Cattaro was large enough for the Germans to have an independent base there, and a torpedo boat was sent overland for their wireless guard. Cattaro was ideal for their purposes, as deep water close up to the entrance made mining difficult. The Germans fully realised that the Adriatic was the key to the Mediterranean.

The relations between the Germans and Austrians were anything but cordial; Austria, like all small naval powers who dared not lose ships, was imbued with a policy of live and let live. It is probable that scarcely an Austrian submarine ever left the Adriatic, and the Austrians did not therefore command the German respect.

Minelaying was begun in April, 1916, by U. 73, which arrived about May 1st, having laid mines off Lisbon and Malta. She was followed by U. 72. Both developed defects, and gave continual trouble. They were known as the children of sorrow.

Seven UC boats arrived towards the end of 1916. UC. 20, converted into a transport, took out German officers to Sollum, and brought back leather and all sorts of commodities, including on one occasion a young camel, which became the mascot of the submarine base at Pola.

By the end of 1916, six UB. boats, 42 to 47, had been sent overland, and six of the large ocean-going boats arrived, by sea, so that at the beginning of the unrestricted period in 1917 there were twenty-six boats, in spite of the loss of four in the Black Sea; two by mines in the Dardanelles; UC. 12 blown up on her own mines in the Gulf of Taranto, UB. 6 transferred to Bulgaria, and UB. 43 and 47 handed over to Austria.

UC. 35 made ten trips in all, nine of them in the Gulf of Genoa. Her tactics were to watch traffic for two or three days, and then lay a straight line of mines across their route; finally she would spend a few days at the small game, raiding sailing vessels, etc. Although I am getting a little ahead of my story, it is worth while to note here that minelaying was not a successful method of destroying shipping. April, 1918, was the period of greatest mining intensity, and in that month mines were laid in the approaches to Marseilles, Naples, Leghorn,

Palermo, Tunis, Corfu, Alexandria and the Ægean, but with little success. From April, 1916, to October, 1918, nineteen vessels only were sunk by mines.

Sweeping for mines was a definite operation which could be undertaken with comparative certainty; the channels were swept daily, up to the 100 fathom line, in many cases. The work was most arduous, and was done mostly by trawlers, of which there was a bare sufficiency. It was splendidly carried out and we owe the *personnel* a great debt of gratitude.

Before passing to the British and allied effort, I would like to give a few comments from the German point of view. In the German captain Geyer's history of the submarine war, we find the following comments on the position in the winter of 1915 to 1916:—

"In the Mediterranean, the U. boat war on commerce remained undisturbed. In that theatre it was less likely to lead to collision with neutrals; the routes were not adequately patrolled, nor were merchantmen armed, so that U. boat warfare could be carried out very nearly like legitimate cruiser warfare." Again: "The end of 1915 was comparatively easy work in the Mediterranean; the Dardanelles and Salonika were harder. There was a patrol of fishing boats and destroyers at Otranto, but it was not of much effect." Again: "The advantage that operations in the Mediterranean had over those in the Northern district was—much greater security, the smoothness of the sea after the abatement of wind, and, on an average, much better weather. U. boat commanders going into the Mediterranean were much envied by their comrades remaining in home waters, on account of the extraordinary possibilities in operations in the Mediterranean."

Occasionally, submarines were detailed for a special service, such as sinking transports in the gulf of Salonika. For example, U. 39 sank the "Norseman" in that gulf on 28th January, 1916.

Geyer says:—"Here we must pause and consider that setting the boats definite aims was almost always a mistake. The object of U. boat war on commerce was to remove from the seas as much enemy and banned tonnage as possible. On the prolific routes from Port Said to Malta, and Malta to the straits of Gibraltar, U. 39 would have sunk its 20 to 30,000 tons with almost mathematical certainty. On considering these operations," he continues, "the reader will have found the answer to the question, why during the remainder of 1917 and 1918 we did not concentrate U. boats on American transports, but distributed them over the trade routes."

Thus the submarine war developed.

By the end of 1915, Germany had seen that a golden harvest might be reaped in these waters, and she immediately planned to concentrate strength against her enemy's weak point. We refused to be warned. The danger signal was given us by the losses in the six months ending in January, 1916, and was again repeated in July, 1916; but it was not until the third repetition, in January, 1917, that we seriously took alarm.

Defence measures always lag behind the attack, unless the attack is foreseen and counter-measures prepared beforehand. We exercised little foresight in this case. True, the Admiralty were straining every nerve to increase the numbers of small craft, such as motor-launches, trawlers and drifters, but these were really useless against submarines, lacking as they did speed, sea-keeping capacity, or offensive power. What was needed was destroyers, sloops and depth charges, and of these three commodities there was in fact a woeful deficiency.

At the beginning of 1917, with a constantly increasing list of sinkings, and available tonnage shrinking rapidly, the Mediterranean authorities were seriously alarmed and felt that something must be done.

The system of zones of responsibility decided on by the conference of admirals on board the "Provence" at Malta was still in force. The patrols on these routes served as sign posts to indicate the routes to the submarines, and they took full advantage of them.

Admiral Ballard, who assumed the command at Malta in September, 1916, disagreed with this system, and soon after his arrival represented in strong terms to the French commander-in-chief and to the Admiralty the drawbacks of the system, and suggested a system of convoys. The Admiralty replied that the French were responsible for the general policy on the station, but that under no circumstances could they agree to any system of convoys, even if it did not require any addition to the force already engaged in patrolling. The French commander-in-chief replied that, as a practical seaman, he did not consider any combined movement of merchant ships possible. Matters, however, went from bad to worse, and early in 1917 both London and Paris became alarmed. A fresh conference of admirals was accordingly summoned and took place at Corfu in April, 1917; Admiral Thursby attended from the eastern Mediterranean, admiral Wemyss was represented from Egypt, admiral Mark Kerr from Taranto, and admiral Ballard sent his chief of staff.

The conference recommended that a British flag officer should be appointed to take command of all British units on the station and to act as the president of a permanent council of allied admirals. The latter were to be responsible for the co-ordination of all arrangements made for the allied vessels directly engaged in the protection of Mediterranean traffic, leaving the French commander-in-chief responsible for watching the hostile battle squadrons. It was further recommended that more should be done in the way of escort and less in the way of patrols. This was a step towards convoy, but in the meantime, at home, the idea of convoy was rapidly gaining ground and experiments had been highly successful.

Resulting from this conference, whose recommendations were confirmed by a meeting in Paris, admiral Sir Somerset Gough-Calthorpe was eventually sent out as British commander-in-chief and took up his appointment on 26th August, 1917. Admiral Fergusson came with him as admiral of patrols, a title which was subsequently changed to director of shipping.

The late admiral Fatou was the French admiral on the council, and admiral Salagar was the Italian. The Japanese admiral Sato who had recently arrived with fourteen thrice-welcome destroyers—completed the council.

The work of these Japanese destroyers was beyond praise. Admiral Thursby was relieved by admiral Fremantle, with the title of rear-admiral, Ægean squadron.

Meanwhile, in the first seven months of 1917, sinkings had gone on uninterruptedly. In April, fifty-six British and foreign ships were lost; in May, thirty-six; in June, thirty, and an average of nineteen for July, August and September. These reduced numbers were partly due to diminution of shipping owing to losses, and to delays consequent on night sailing—and on detention to await escorts.

Let us see what was happening to the net-drifters. Commander Turle with his flotilla of net-drifters in the Ægean toiled day and night, but caught nothing.

On the night of the 14th-15th May, 1917, captain Horthy in the "Novara," with two other cruisers and a division of destroyers, attacked the Otranto barrage, then consisting of drifters with indicator nets.

After shelling some transports and sinking an allied ammunition ship somewhere near Fano, two cruisers passed through the barrage at night, and appeared at daylight to the southward of the drifter line, one at each end of it. The line was unsupported and the cruisers were able to sink seventeen and damage five others. The skippers and crews of many of these drifters behaved heroically, attacking with their little guns the large cruisers which were calling on them to surrender and which could so easily make mincemeat of them. I will give two examples of gallantry. Skipper Joseph Watt, of the drifter "Gowan Lea," when hailed at about a hundred yards and ordered to stop and abandon his drifter, ordered full speed ahead, called for three cheers and ordered a fight to a finish. He engaged the "Novara" fiercely and she passed on, and Watt then went to the succour of another drifter. He saved his ship by his own and his crews' splendid conduct under heavy fire, and he was awarded the V.C.

Engineman Walter Watt, of the drifter "Astrum Spey," was taken prisoner in an Austrian boat, but, declaring that he would never be a prisoner, jumped overboard. He was recaptured, but on arrival of the Austrian cruisers he jumped overboard again and made good his escape, being picked up one and a half hours later. For this he was awarded the Conspicuous Gallantry medal.

The British cruisers "Dartmouth" and "Bristol" issued from Brindisi and engaged the three Austrian cruisers, who returned at full speed to Durazzo; they had the legs of the British and, though severely punished drew away, and when close to Durazzo were reinforced by another cruiser, on which the station admiral, who was in command of the allied operations on board the "Dartmouth," broke off the action and returned to Brindisi.

On the way home, the "Dartmouth" was torpedoed by submarine U. 89, but she got home. The "Novara" was so badly damaged that she had to be towed home, and Horthy was wounded. Horthy's action gained for him a reputation which may well have weighed the scales of that fortune which has since placed him virtually on the throne of Hungary. The ultimate consequence of any act can never be foreseen.

Malta, with its immense flow of shipping of all sorts, was curiously neglected by submarines. Its normal local patrol was one drifter and, in fine weather, two motor-launches. Merchant ships and transports had to lie in the wholly exposed bays of St. Paul's and Marsa Scirocco, where the only defence was a line of buoys which it was hoped the submarines would mistake for a net. But, beyond laying mines in the vicinity, the submarines, doubtless believing it strongly protected, left Malta alone. Malta was really protected by bluff. When admiral Calthorpe arrived, he was astounded to count fourteen large steamers with full cargoes lying in Marsa Scirocco with no protection but one drifter. After investigating the circumstances, he concluded he could do no better than leave them there. Previous to the arrival of the British commander-in-chief, admiral Ballard managed to wring four destroyers from the Admiralty, and the arrival of the Japanese flotilla had much relieved the situation as regards escorts.

As regards weapons to deal with submarines, we were in a bad way. True, there were the gun and the ram, which could be used when the enemy remained on the surface; but, once submerged, we had only the depth charge, which rather resembled a sledge hammer used by a blind and deaf assailant against an assailant blind but not deaf, and compelled to crawl on his hands and knees. It was horribly chancy, but when it got home it frequently killed. Unfortunately, there was a terrible scarcity of these depth charges. An unaimed weapon of this kind demanded enormous numbers for effective use; the sea must be literally plastered with them in the region in which the submarine was known to be. Instead of that, from 3 to 6 depth charges was all that could be afforded to a trawler, sloop, destroyer or cruiser until towards the end of 1917, when the supply began to increase and a proportion of destroyers were fitted as killers, some with sixty depth charges, with a thrower on each broadside fitted with quick loading arrangements, as well as dropping arrangements over the stern, and others with thirty-six depth charges, an effective armament which did not involve the surrender of a 4-inch gun.

In addition to the weapons mentioned above there was the anti-submarine paravane which came to be fitted to a few Mediterranean destroyers and sloops, but which was never very successful. There were also deep mines which are believed to have had two successes off the Dardanelles, and indicator nets, which also scored a success in 1916 on the Otranto barrage. Beyond this—nothing.

In June 1917, whilst H.M.S. "Latona" was refitting, admiral Thursby sent me home to collect such anti-submarine gear and information

as I could. I managed to lay my hands on about twelve sets of directional hydrophones and thirty or forty plate or shark fin hydrophones, then the latest thing, and a good deal of other stuff, and these I brought out a fortnight later, with promises of kite balloons, nets and all kinds of good things.

In the energetic hands of captain Stephenson, who then administered all the trawlers and drifters in the Eastern Mediterranean, these instruments were fitted to the trawlers, and a system of hunting developed. The system necessitated the stopping at the same instant of all craft engaged in hunting, and then listening for the submarine and trying to estimate her direction.

The directions found had to be signalled to the controlling boat, who estimated the position of the quarry, and then all moved forward a step and listened again. Finally one or two craft would rush forward to the predetermined spot, strew the sea with depth charges, and wait for pieces of the victim to come to the surface. But they rarely did—the instruments were crude and the method they involved even cruder, and moreover it was rare that a hunt was undisturbed by some other craft passing near the scene of operations and completely spoiling by its propeller noises any chance of hearing the submarine. However, this method, being the only one available, was highly developed in the Eastern Mediterranean in 1917. Amongst the *personnel* of the patrol craft enormous enthusiasm was aroused, so much so that it is said that the medical profession was startled by the arrival of a new disease—the operators developed corns on their ears from continual listening to hydrophones.

Based on Salonika we had a hunting flotilla of four torpedo boats, and another of six motor-launches, the apparatus being locally made. With these flotillas we had several interesting hunts, but the result was always the same, and the submarine escaped. Nevertheless the *Ægean* was greatly respected by the enemy submarines in that year and their visits were accordingly few.

When the commander-in-chief took up his command in August, things began at last to move. Germany then had thirty-three submarines operating from the Adriatic, and this enabled from five to eight to be at sea at a time.

Admiral Calthorpe had determined upon offensive measures. The difficulty lay in deciding what would be the most fruitful form of offensive measure in which to employ the available vessels. He started by redistributing the patrol craft of which the *Ægean* had had an undue share. The central organisation for dealing with the control of traffic, already alluded to, was established, and known as the Commission de Malte. Convoy having proved itself by now in English waters, the commission set itself to organise convoy in the Mediterranean. A central training school was established for teaching the *personnel* of hunting craft how to hunt submarines. In deciding on the best offensive, the admiral had to listen to many conflicting counsels.

Firstly, there were those who believed the straits of Otranto could be blocked by mined nets, or in other words a fixed barrage. The straits at their narrowest are 49 miles across, and the depth for the most part lies between 300 and 500 fathoms. The British had tried and failed. The Italians and French had a scheme known as the De Quillac net, in which the supporting buoys were some fathoms under water, and this it was decided to try. Slowly and laboriously the great effort proceeded, but by the end of the war the net had been laid only about halfway across.

Secondly, there were those who said that the whole of the hunting craft should be attached to convoys. Thus placed, the submarines *must* come within their reach in order to attack trade, and the hunting flotilla would then detach itself from the convoy and hunt the submarine to destruction.

Others, again, had no belief in hydrophones; the convoys, they said, should have strong escorts, preferably destroyers, which should be armed with large quantities of depth charges, and on the first sign of a submarine should strew the sea with them in his vicinity.

Others again urged a concentration in the straits of Otranto, of patrol craft so dense and so great in depth and so well organised for hydrophone hunting as to render the Straits very nearly impassable to submarines.

Amidst the multitude of counsels, the commander-in-chief made his decision. It was to concentrate as many craft as possible on the Otranto barrage, retaining only a bare sufficiency for escorting the convoys which the Commission de Malte was busy organising. He expended his main effort on what he considered the true offensive, and used the bare minimum of craft for what he considered the defensive policy of escorting convoys.

During the latter half of 1917, the drift net barrage was maintained, strengthened by destroyers and by British submarines. The escorts of merchant shipping were increased, and towards the end of that year the convoy system came into being.

The institution of the barrage proper dated from a conference at Rome in February, 1918, when the British commander-in-chief urged on the French and Italians the necessity of such a step. The French were agreeable, the Italians rather cold, but both urged the completion of the De Quillac net. This we agreed to, and it was incorporated into the barrage scheme, whose organisation was immediately commenced.

Brindisi became the principal base for destroyers in the Mediterranean. More submarines were moved up. The Admiralty were interested; units of three trawlers fitted with the Nash fish hydrophone, then reaching maturity, were sent out.

Rear-admiral Kelly, who commanded the cruiser squadron based on Brindisi, was placed in command of the whole barrage organisation, and captain Stephenson, whose energy had been conspicuous in developing the hydrophone, training the *personnel* of patrol craft to use it, and advocating the barrage, was placed in immediate command of operations.

DISPOSITION OF BARRAGE FORCES



I was sent in the "Latona" with a number of auxiliaries, to organise the base at Corfu, and a kite balloon base was constructed on shore there and another at Brindisi. Adequate facilities for repairing trawlers existed at Taranto.

The British air force in southern Italy was greatly strengthened, with a view to bombing attacks on Cattaro, as well as overseas patrols. Many such attacks were carried out in the summer of 1918, and had the effect of weakening the enemy's *morale*. A total of six destroyers and eighteen trawlers were sent as reinforcement from England, and thirty-six American chasers were promised, and arrived in July, 1918. The total forces engaged in the barrage were two hundred and forty-six. This allowed of one hundred and forty-one being generally on patrol.

The aims of the barrage were:—Firstly, to secure depth: that is, a band of patrolled waters so broad that a submarine must proceed part of the way on the surface; secondly, to ensure that in this band the submarine should be hunted from one end to the other and, if possible, destroyed; (it was so disposed as to give a clear field for hunting to the fish trawlers, and to the submarine chasers): to use the kite balloons to extend the horizon of the southernmost hunting units; to watch the fixed barrage; to have killer destroyers supporting the hunting units; and to guard the barrage from raiding by an advanced line of destroyers, which, in turn, were supported by light cruisers from Brindisi.

The work of the British submarines on the barrage was indefatigable, but was attended by extraordinary ill luck. Out of seventeen engagements in the Adriatic, two were successful in sinking enemy merchantmen close to their coast, and one in sinking an enemy submarine. The successful attack took place as follows:—

H.M. submarine H.4, on 23rd May, 1918, sighted an enemy submarine on the port bow steering N. by W. The commanding officer turned towards the enemy, and proceeded at full speed to attack; enemy altered course 8 points to starboard. H.4 fired two torpedoes at a range of 250 yards. Both hit, and the enemy sank in fifteen seconds. H.4 picked up two survivors, the captain of the boat and the quartermaster. This was U.B. 52. In addition to this success, the French submarine "Circe" torpedoed U.C. 24 in May, 1917, and Italian submarines had accounted for two Austrians earlier in the war.

The fixed barrage also had a success. U.B.53 left her base at Pola for a cruise in the Mediterranean on 1st August, 1918. She was proceeding, submerged, on 3rd August, to pass the Otranto barrage when about 7 p.m. she fouled the mined nets and was badly damaged by the explosion of two mines. She came to the surface and, finding the damage impossible to repair, the captain gave orders for her to be sunk, which was accordingly done. Survivors were picked up after three and a half hours by H.M.S. "Martin" and "Whitby Abbey."

This gave rise to an amusing tale. A story was told by captain Lee, the American, of how the rubber eels (a type of hydrophone) which we had lent his submarine chasers, had got bitten off by the sharks—a

story which requires a bit of believing. Stephenson told him he could beat his story by one of ours, for one of our hydrophones had actually caught a Hun. The incident was as follows :—

When UB. 53 was blown up on the net, "Whitby Abbey" closed to pick up survivors. She had the hydrophones and C. tubes down while stopped, in case other submarines were in the vicinity. The man at the C. tube on the fo'c'sle heard on his listeners most fearful crashings, which got louder and louder, and he nearly had a fit when over the gunwale he saw a Hun's face appearing. The man had swum to the ship and climbed up the C. tube.

As regards the fish trawlers and chasers, they had many exciting hunts, but as far as is known, no absolute kill, although at the time the combatants often claimed a kill.

The keenness of both British and Americans was extraordinary. There were over one hundred and fifty contacts, in sixty-three of which the enemy submarine was sighted, and in one hundred and twenty-six heard only. Many of these must have been false alarms, when the hunters were vainly hunting the noise of some distant destroyers, but many were genuine, and, even if they did not kill, must have had their effect on enemy *morale*. Gradually, through practice, these hunting craft were perfecting themselves in the complex and difficult combined work which was required, and had the end not come when it did, they could doubtless have reaped a rich reward. That the Otranto barrage was hated and feared by the Germans is known. Actually, they attributed to it losses which had occurred elsewhere, and they brought great pressure to bear on Austria to use her forces to break up the barrage.

On the 13th June, 1918, at dawn, lieutenant Rizzo of the Italian Navy was lying inside the Dalmatian islands with two tiny motor-launches, hoping for a chance at an enemy. His time on patrol was nearly up, and he took a last look round prior to making for home. Suddenly he saw smoke on the horizon, and it proved to be two Austrian battleships escorted by torpedo boats, moving south to Cattaro with the intention to raid the barrage. He was unobserved until quite close, and gallantly succeeded in torpedoing and sinking the "Szent Istvan," one of their latest battleships, and although he got a shot in his engine room, he reached home safely.

Another line of effort consisted in the commissioning of sailing ships known as "Brigs." These had several engagements with enemy submarines, and damaged them, which had the effect of almost completely stopping submarine attacks on sailing vessels in the Mediterranean.

As to the convoy system, there is little doubt that its adoption marked the turning point in the submarine campaign as a whole. Both local and through convoys got going in October, 1917. The local routes were :—

Bizerta-Alexandria	...	...	every five days.
Bizerta-Malta-Milo	...	...
Milo-Alexandria	...	...	every four days.

Marseilles-Bizerta	...	...	twice weekly.
Marseilles-Bizerta	...	...	(faster convoy) twice weekly.
Marseilles-Algiers	...	...	three times a week.
Marseilles-Algiers	...	...	(faster) twice a week.
Bizerta-Corfu	...	...	as required.

Fast through convoys were sailed from the United Kingdom to Port Said under British escort. They were known as O.E., and return convoys known as H.E.

Australian, far eastern, and Indian ships had been diverted round the Cape in 1916. Now, when the through convoys were established in October, 1917, this traffic was restored to the Mediterranean.

The gain in time for the Indian ships alone was represented by the ability of ninety ships to carry the priority cargoes, instead of a hundred and thirty, thus setting free forty ships for work elsewhere. The local convoys also saved time and tonnage, for, previous to their introduction, a voyage from Malta to Port Said, for instance, sometimes took from thirty to thirty-two days.

All these convoys were organised from Malta, which by means of directional wireless and other intelligence, had the latest information of the position of enemy submarines. This information was distributed to local authorities, who, while sailing their convoys to time table, planned their routes to avoid the submarines. They telegraphed the proposed routes to Malta, who approved or otherwise.

Soon this was seen to be cumbrous, and finally, after a great fight, the whole of the routeing was done by Malta, and the evasion of enemy submarines was practised with consummate skill and success, but this was not till well on in 1918. It was achieved by admiral Baird, who relieved admiral Fergusson in the spring of 1918.

But the escorts available for these convoys were at all times woefully insufficient and lamentably slow. The aim was always to have a destroyer or sloop assisted by two trawlers at least, but often the escort amounted to two trawlers only.

Sinkings continued, though in diminished numbers, and in cases of trawler escort only, a submarine sometimes followed up a convoy, sinking ship after ship, the trawlers which stopped to rescue crews never being able to catch up their convoys.

One can picture the agonized feelings of the convoy authorities at Malta when reports of such sinkings were coming in, and they were powerless, having no means of effecting a rescue. Can it be wondered at that they turned covetous eyes on the Otranto barrage, so rich apparently in fast craft, which, in their hands, might have been preventing this slaughter? But the commander-in-chief never wavered, and having outlined his offensive policy, he stuck to it to the end. To see whether he was justified, another six months of war would have been required. Certain it is that the measures he adopted did in fact defeat the submarine campaign.

The convoys were not without their successes against submarines,

On 8th May, 1918, south of Majorca, H.M.S. "Basilisk," escorting a convoy, observed the track of a torpedo crossing from port to starboard 200 yards on the port side of S.S. "Ingleside." "Basilisk" was on the port quarter of "Ingleside," and, a few seconds later, "Ingleside" was struck. Basilisk leapt ahead and followed the track of the torpedo back towards its origin and dropped three depth charges on the submarine's estimated position, at intervals of a minute. Brown patches of oil appeared. U.S.S. "Lydonia" also dropped three depth charges, and the loss of submarine U. 70 in this attack was subsequently established.

On 17th May, 1918, west of Sardinia, the French patrol vessel "Ailly," in company with two sailing vessels, was attacked by gunfire by an enemy submarine, who apparently mistook her for a small merchantman. The "Ailly" replied at 6,000 yards, and within a few minutes the submarine was hit on the port side aft by a shell which tore open a ballast tank and started a bad leak. At the same time another shell hit the conning tower, killing or wounding the commanding officer and two or three others. Orders were given to abandon ship, when she suddenly sank. Five Germans and a captured Spanish seaman were rescued. This was U.C. 35.

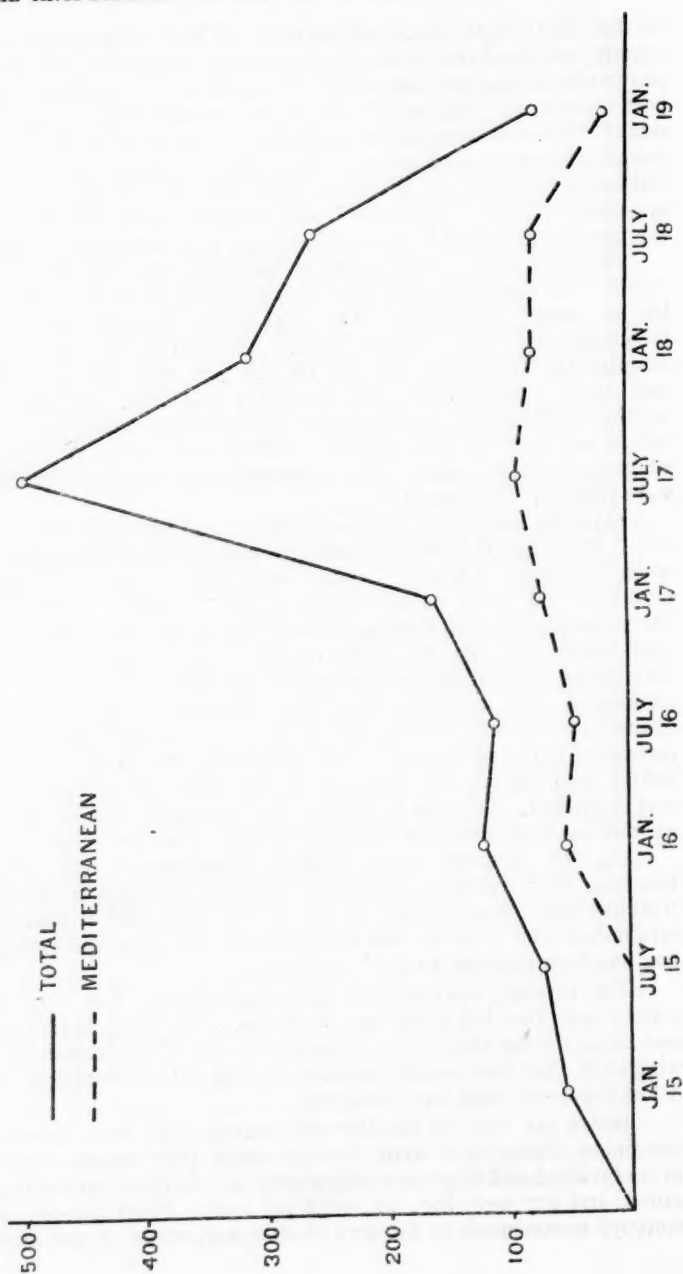
On 17th June, 1918, between Sardinia and Sicily, H.M.S. "Lychnis" and "Partridge II." were escorting a convoy from Marseilles to Malta, when transport "Kandy" was torpedoed. "Lychnis" sighted the periscope 300 yards on the beam of the "Kandy" and made for it. The periscope was still showing when it almost scraped along "Lychnis's" port beam. She let go depth charges, and a few seconds after the detonation the submarine appeared on the surface, bows up, stern submerged, and conning tower just showing. Fire was immediately opened and the ship was headed to ram. "Lychnis" intended to make certain of her, and she did. The submarine was rammed aft, but only lightly, and though she disappeared, she soon rose again, when gun-fire was re-opened. She was frequently hit, and sank after an action lasting 22 minutes, five survivors being picked up. Thus perished U 64.

On 8th January, 1918, H.M.S. "Cyclamen" was escorting off Bizerta. Her paravane exploded, and she dropped a depth charge. Nothing much was thought of this at the time, but it was afterwards established that U.B. 69 was lost at about this time and place, and the bag has been assigned to the "Cyclamen."

The through convoys had their bad times. The very first O.E. convoy lost two big ships out of eleven. The sixth O.E. convoy lost one ship. Then they were immune till the ninth homeward convoy, which left Port Said on 4th April, 1918, and out of twenty-one steamers, it lost three sunk and two damaged.

Just 2 per cent. of the through convoy ships were torpedoed; the remaining ninety-eight went through safely (this means thirteen losses in six hundred and fifty-three ship voyages). In local convoy 10,464 ships sailed, and 127 were lost, *i.e.*, 0.32 per cent. From the date on which convoys commenced, to the end of the war, some 15 per cent. of the

BRITISH MERCHANT SHIPS SUNK BY ENEMY IN SIXMONTHLY PERIODS



submarines sunk over the whole war area were sunk in the vicinity of, or when attacking, convoys.

The *morale* of the enemy submarine had now been severely shaken; merchant ship sinkings were being reduced month by month, and the end was in sight. Some of the best submarine commanders had left the Mediterranean, and the others were scared.

During May, 1918, five boats had been lost, three by armed patrols; U. 39 interned at Cartagena, where she took refuge after being damaged by French aircraft, and U.B. 52, whose destruction by H. 4 has been detailed. In the year 1918, eleven boats were lost in the Mediterranean, and only four new ones had arrived. There were still some twenty-five boats left when the collapse of Austria necessitated evacuation.

On 28th October, all submarines received orders to proceed to their nearest base and fill up, preparatory to immediate return home. Three days later, boats at sea were told to proceed forthwith to Kiel, putting into Spanish ports for internment, should no other course be open. Those in Turkish waters were to be destroyed. Eventually ten boats set out for Kiel, one of which, U. 34, was sunk in the Straits of Gibraltar. The two children of trouble were blown up at Pola and Cattaro. Four boats surrendered at Sebastopol. U.C. 74 interned at Barcelona on 2nd November. Thus came the end. The Allies had repaired their errors and even without the Austrians' collapse, the situation was saved.

The following figures show that the Mediterranean first lagged behind and then picked up on home waters defence.

In April, 1917, when total losses rose to 873,000 tons, the Mediterranean losses amounted to 180,000, or one-fifth of the whole. By December, 1917, anti-submarine measures at home reduced the total to 380,000 tons, of which 147,000 or well over one-third was in the Mediterranean. In May, 1918, the total was 294,000, of which 128,000, nearly half, were in the Mediterranean. By August, 1918, when convoy and the Otranto barrage were in full swing, losses in the Mediterranean fell to 49,000, or one-sixth of the total losses.

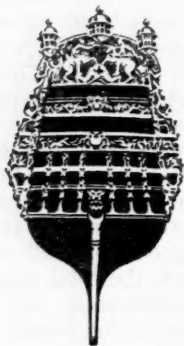
It is fair to conclude that British eyes were turned too much towards the North sea, and that polyglot control offered many difficulties, but the great effort, whose story I have endeavoured to give, finally overcame these handicaps.

DISCUSSION.

[Owing to pressure on space it has not been possible to reprint in full the discussion which followed the lecture.—Ed.]

ADMIRAL BALLARD drew attention to the Admiralty's opposition to any system of convoy until late in the war, and said that he had been forbidden to use the term, even in his telegrams. He added that it was not generally known that Malta had possessed practically no submarine defences; and that if German submarines had left it alone, it was only because they had never deemed it possible that a place of such importance to shipping was without means of protecting it. Numbers of vessels had been compelled to lie in open anchorages at St. Paul's bay, where lines of

empty casks and painted oil drums had been laid out as a dummy defence to deceive the enemy. THE CHAIRMAN pointed out that the anti-submarine campaign had finally been organised upon certain broad strategical principles. First by grouping ships into convoys and placing them under escort; and, secondly, by attacking the enemy at their points of arrival and departure. The difficulty of any system of anti-submarine war was that the defence must always lag behind the attack. Each theatre of operations had its own peculiar features, but the great obstacle to defending commerce in the Mediterranean was that the tracks of shipping could be so little varied. He then showed that it was far more difficult to make the straits of Otranto impassable to submarines than the straits of Dover. The first was a deep passage 40 miles wide; the second a shallow one 17 miles in width. Concluding he expressed the hope that anti-submarine warfare would be frequently discussed in the institution. A vote of thanks to the chairman was carried unanimously.



THE PAST AND FUTURE OF THE ROYAL INDIAN MARINE.

By REAR-ADMIRAL H. L. MAWBEY, C.B., C.B.O.

On Wednesday, 26th March, 1924, at 3 p.m.

COLONEL THE RT. HON. LORD AMPHILL, G.C.S.I., G.C.I.E.,
in the Chair

THE CHAIRMAN : Ladies and gentlemen, I venture to think that those of you who are present here to-day are fortunate in that you are to listen to a lecture of very great interest and one for which the moment is particularly opportune. But the most fortunate thing of all is that we have as our lecturer a man who above all others knows about the subject of the royal Indian marine and whose knowledge is absolutely up-to-date. Rear-admiral Mawbey was not only senior naval officer at Bombay for some years, but has only quite recently retired from the office of director of the royal Indian marine. He is, therefore, the officer who was actually at the head of that service, and he held that position at the very interesting period of transition in the government of India. Therein lies the importance of the moment, and the importance of the subject.

There can be no doubt whatever that the royal Indian marine and the sea service which, under a different name, was its immediate predecessor, played a very great and indispensable part in the building up of the British Raj in India, and yet that service has never had its fair share of attention in any of the histories of British rule in India. That, after all, is only on a par with our own neglect of the seamen of our own country, although we are a seafaring nation, and the astounding ignorance which prevails among the general public about naval and maritime affairs generally.

But the importance of the paper rests in this. If the peoples of India are to govern themselves in the same way as the great dominions of the empire, the first essential is that they should be able to defend themselves, because that, after all, is the primary and the paramount duty of every government. They must be able to defend themselves not only against external aggression but also against internal disorder, and for that purpose a country with thousands of miles of seaboard needs a naval force as well as military forces. This is a consideration which has never been taken into account by any of the responsible statesmen who have brought that very great change in the conditions of British rule in India which contemplates the handing over of the government of India to the Indians themselves.

Your humble servant ventured, in his place in Parliament, to point out on more than one occasion that they were putting the cart before the horse, and that, although he was quite in sympathy with the idea that, in due course of time

when they were fit for it, the Indians should have an ever-growing share of responsibility in the government of their country, yet they could not discharge that responsibility until they were able to defend themselves, and to preserve that order and peace on which all government ultimately depends. Those views, however, met with no acceptance, and were disregarded. But of this I am quite certain: if the time comes as early as it is generally expected for the peoples of India to take even greater responsibility than at present for the government of their country, they will at once find themselves up against the difficulty of maintaining internal order, and securing their frontiers both by land and by sea against aggression of all kinds.

As the admiral reads his paper you will see that it is not merely a question of what we call an invasion, or an attack on the coasts of India by a large naval force. In the old days the principal danger was from piratical aggression, and one of the greatest services that our race has rendered to the peoples of India is to have safeguarded all their frontiers by sea and land, and thus to have enabled them to make that moral and material progress which they have made under British rule. The first essential, however, was the defending of the coast against the constant attacks of pirates. You all know that piracy is not extinct in eastern seas, and it is as certain as it is that the sun will rise to-morrow that, once our naval defence is withdrawn, all those seas will very soon be infested again with pirates, and the difficulties of a purely Indian government in maintaining their communications with the rest of the world, and indeed in maintaining their trade, would be very great indeed.

I must not anticipate or encroach upon the subject of the lecturer, and therefore I will now ask rear-admiral Mawbey to be good enough to read his paper.

LECTURE.

I HAVE been asked to address you on the subject of the past and future of the royal Indian marine, of which I was director for nearly two years, and I should like, to begin with, to express my thanks to the Council of the Royal United Service Institution for having given me the opportunity this afternoon to place before you a necessarily brief account of the origin and past of this little known, but most interesting, service, and to discuss for a few moments the possibilities of its future.

In any such discussion, however, there are two things which I submit should be borne in mind; first of all: that India, in spite of her size and of her teeming population, is at present by no means a rich country, whatever she may become in the future; and, secondly, that, unlike the dominions, for instance, she is obliged to maintain for her own security, both internal and external, a considerable army, of both Indian and European troops, amounting in all to some 250,000 men, part of which has to be kept on what is practically a war footing.

What is the Indian marine? . . . I have been asked that question many times, both at home and in India, and I have little doubt that the same question is in the minds of many who are here this afternoon. Those who know at any rate of the existence of such a service, possibly look upon it as a comparatively modern innovation, which carries out some more or less unimportant duties in peace time

in Indian waters, and of which the future is, to say the least of it, uncertain; but, however that may be, it actually represents to-day the latest phase of a service which has been in existence in some form or another for over 300 years, and which for two centuries and a half was the sea-going fighting force of the East India Company in eastern waters.

If we, and the world in general, are agreed in extolling one achievement of our race as pre-eminently greater than any other, it is, without doubt, the acquisition of our magnificent eastern empire. That we are to-day a first class Asiatic as well as a first class European power is largely due to this; and the service of which I speak to-day, as I shall try to show, played no inconsiderable part in the acquisition of that great inheritance. Unfortunately, on the abolition of the Indian navy in 1863, after the government of India had passed into the hands of the Crown, almost the whole of the official records were destroyed, both at home and in Bombay, and so it is only through an occasional reference in old public records, and by fragmentary memoirs, papers and reports, that its past history can be traced.

Historical works have been written detailing the services of the army in every Indian war of importance, while naval historians have narrated the deeds of the British navy in these waters, but between the two, the old Bombay marine and Indian navy have too often been ignored, or at least forgotten, while official reports indeed, as a rule, only make the barest reference to them. Although its records could show no roll of great sea-fights, for it was always a small service even in its prime, still, the Indian navy was seldom at peace, and in single ship actions, boat actions, and in assaults on forts and strongholds, showed the traditional gallantry of the seamen of its day. It was also associated with the Royal navy in almost every important operation that took place in eastern waters, and was, besides, the nursery of a band of marine surveyors who commenced, in 1772, the work which has been continued to this day. The sea service under the government of India has been known by many names since its first establishment. From 1612 to 1686 it was known as the Honourable East India Company's marine; from 1686 to 1830 as the Bombay marine; and from then to 1863—in which year it was abolished—as the Indian navy. This was its final disappearance as a fighting force, but a portion of it, as the Bombay marine, survived as a transport service, and was renamed in 1877 Her Majesty's Indian marine, and so remained until 1892, when its present title of the Royal Indian marine was finally adopted.

When, in 1612, the East India Company first gained a precarious footing at Surat, they lived in a constant state of apprehension and alarm. In addition to the assaults of the fanatical Mahrattas on the land side, and the opposition and annoyance caused by their Dutch, and particularly by their Portuguese, trade rivals, the fact that the west coast of India was a series of wasps' nests of well-armed and enterprising pirates (as were, indeed, all eastern seas at that time)

rendered the establishment of a local sea force absolutely necessary, and so in that year captain Thomas Best, of the company's service, with two large ships, the "Dragon" and "Osiander," together with two smaller ones, the "James" and "Solomon," arrived to form the nucleus of such a force.

It was promptly attacked by the Portuguese fleet, and, in fact, the Hon. East India company's marine, as this small force was called, was engaged for the next three years in almost continuous warfare, which culminated in the grant of a firman from the Mogul Emperor Jehangir, permitting the English to trade within his dominions.

Augmented from time to time, the East India company's marine force was engaged up to the year 1686 in a practically never-ending, and, on the whole, successful, warfare with the company's enemies and rivals, both on the coasts of India and in the Persian gulf, notably in the assault on and reduction of Ormuz, the Portuguese stronghold and trade centre of these waters in 1662, which broke the monopoly of that power, and in fact led to their ejection from the gulf and its opening to the company's trade. As a matter of interest, I may mention that William Baffin, the celebrated Arctic navigator, who was one of the company's pilots, was killed during these operations.

In 1652 the Dutch war broke out, during which the company's vessels could do nothing, owing to the superior strength of the enemy, and their trade suffered severely in consequence.

In 1661, the island of Bombay, one of seven small islands, was ceded to the English crown as part of the dowry of Catherine of Portugal on the occasion of her marriage to Charles II., but on account of local opposition it was not actually occupied until 1665, and three years after that, so unsuccessful was the administration of the crown and so lightly was it esteemed, that it was transferred to the company for an annual rental of £10, and after a time the company, having had enough of Surat, transferred their headquarters to that island, although effectively cut off from the mainland by the Portuguese, who still occupied the island of Salsette. As a matter of fact they had their eye on it long before, on account of its harbour, and had tried to capture it unsuccessfully in 1626. The East India company's marine became the Bombay marine, a name it was to bear for nearly two hundred years, and to this day Bombay serves as the headquarters of the sea service of the government and has its principal dockyard there.

Following on the cession of Bombay to the company, and the appointment of captain Thomas Young of the marine as deputy governor, a further development of that force took place, and it is recorded that Mr. Warwick Pett, a descendant of the celebrated Elizabethan ship-builder Phineas Pett, was sent to Bombay with a full supply of equipment and stores for shipbuilding, but it was not until the beginning of the 18th century that, menaced on all sides by the Portuguese, Sidis, and Mahrattas, the Bombay council increased their fleet by purchase and building, drawing on their trading vessels to man their fighting

ships. They brought down from Surat a Parsee foreman of shipwrights, Lavji Nasserwanji, who selected the site of the present dockyard, and who, with his descendants, held the post of master shipbuilder to the company, and afterwards to the government, for nearly a century and a half. One of them, Mr. Jamsetji Bomanji, was responsible for building for the Royal navy, between the years 1805 and 1831, no less than 20 ships, all of which were remarkable for their strength and sea-going qualities; the first ship ever launched for the marine by this family was in 1735, the last in 1881.

This period of activity was followed, as happened over and over again, by a sweeping reduction, for economy's sake; as a result, the temporary lull in hostilities, which was in fact mostly due to the presence of the marine, promptly ceased, and not only did the company's trading vessels suffer at the hands of pirates, but, when war broke out with France in 1744, their ships were quite unable to cope even with two French privateers who lay off the port of Bombay to intercept east indiamen.

In 1756, a royal squadron, under vice-admiral Charles Watson (vice-admiral of the red), visited Bombay for the first time since its cession to the company, and advantage of this was taken to despatch a joint naval and military expedition against Viziadroog, or Gheria, as it was usually called, the principal stronghold and arsenal of the powerful pirate Tulaji Angria, whose family, for about 100 years, had committed outrages on the Mahratta coast and acquired both wealth and territory. Angria was feared even by the company, who had attacked him several times without any particular success, until just previously to this, when a squadron of the company's ships, under commodore James, one of the most distinguished officers that the Indian service ever produced, acting in conjunction with a Mahratta force, had destroyed his fortress of Severndroog. As an example of Angria's strength and audacity, he had taken several of the company's ships, notably the "Derby," richly laden, the "Success," the "Resolution" of 20 guns, the "Jupiter" (French) of 40 guns, and had also ventured to attack commodore William Lisle, who had two ships of the line, and others in company, besides causing much damage to trade.

The military part of this expedition was commanded by colonel (afterwards lord) Clive, and it finally broke the power of this inconvenient neighbour. The company's ships that served under vice-admiral Watson were the "Protector" (flag) 44 guns; the "Revenge," 28 guns; "Bombay" and "Guardian," 24 guns; "Swallow," 16 guns, and five bomb ketches.

After this had been effected, it was proposed by the court of directors again to reduce their sea-going force, but the outbreak of war with France prevented this, and commodore James, taking his squadron round to Fort William (Calcutta) during the monsoon, the first time that such a thing had ever been attempted, actually brought with him the news of the outbreak of hostilities, and with 500 men from his squadron

assisted colonel Clive and admiral Watson in the capture of Chandernagore, which dealt a severe blow to French trade and prestige in the east.

After retirement, commodore James was appointed to a seat on the board of directors, which he held for twenty years, becoming deputy chairman and chairman of the company; he entered Parliament as member for the Cornish division of West Looe; was given a baronetcy, now extinct, in 1778; became an elder brother of Trinity house and deputy master from 1775 to 1783; a governor of Greenwich hospital, and a fellow of the Royal Society.

Admiral Watson, who so ably assisted Clive, unfortunately died of fever in Calcutta at the age of 44, and a tablet in the cathedral there, and a monument in Westminster abbey, both erected by the East India company, perpetuate his memory. In recognition of his services, George II. made his son, a child of eight years old, a baronet; this baronetcy is also extinct, as the last holder of the title, Watson's great-great-grandson, died in 1904.

From what has been said of the "Angria" community, only one of many, though unquestionably one of the most powerful, of the hordes of pirates in these waters, it will be understood that much of the time of the Bombay marine in the 17th and 18th centuries was engaged in combating marauders who preyed, not only on the native coasting trade, but, as we have seen, on the company's, and even on the Mogul emperor's trading ships. In fact, the company were obliged to ask for the assistance of a powerful squadron of men-of-war to deal with these pests, who not only imperilled their ships and the lives of their crews, but also endangered their trading privileges, for the Emperor insisted in attributing these piracies to the English. At last the company were obliged, together with the French and Dutch agents, to give a security bond for payment of any losses which pirates might in future cause. It is obvious, therefore, that the extirpation of these gentry was a matter of the highest importance. Hence the expedition against Angria, against the powerful Joasmi pirates in the Persian gulf (whose power was not finally broken till 1818 and then only by a large joint expedition), and against the Beni-Bu-Ali Arabs, who, after repulsing with great slaughter the first expedition sent against them, were finally wiped out in 1820. It should be remembered that these Indian pirates were often as well armed and as well-found as the company's vessels themselves, and Kanojee Angria, the first of his notorious line, had successfully defied the efforts of the Dutch, Portuguese, and Mahratta fleets. He possessed a long stretch of fortified coast south of Bombay, one of his fortified places being the island of Kenery, at the very mouth of Bombay harbour, against which all the efforts of the company's forces, even when aided by the Portuguese, had been in vain. He possessed a large and powerful fleet, which was manned by every sort of ruffian that the east could produce—renegade Christians, chiefly Dutch, and Portuguese, Arabs, Indians, and Negroes, a most daring and desperate crowd, who, as we have seen, did not hesitate to attack the company's

or even the king's vessels of war when the odds appeared to be sufficiently in their favour. Besides these, there were pirates sailing under both Dutch and English colours, whose headquarters were on the East coast of Madagascar. It was a captain Avory or Evory (alias Bridgman), together with the better known captain Kidd, who attempted to make the island of Perim in the straits of Bab-el-Mandeb their headquarters, which of course would have put the whole of the Red sea trade entirely at their mercy; but, fortunately, the entire absence of water, in spite of extensive borings, frustrated their design. Many stories of the cruelty and brutality of captain Avory are told: with regard to captain Kidd, the remarkable thing about his case is that, all this time, he was supposed to be acting on behalf of the then governor of New York, lord Bellamont, and others, in a venture which had for its object the suppression of piracy, particularly in the West Indies.

It appears to have been notorious at that time that many of these sea-rovers sailed from English colonial ports, and even from New York itself, though the governor, the earl of Bellamont, had made a strong effort to stop them, and having been advised that the only way to deal with them successfully was to send a vessel of force against them, captain Kidd was put forward as a competent person to command such a vessel. Owing to the war with France, no men-of-war were available, so the "Adventure," galley, of 275 men and 30 guns, was fitted out with the sanction of the king, and captain Kidd was given the command. Whether Kidd was at first sincere in his offers of service against the pirates is unknown:—he may have been, but one thing is certain, he had not long been in command of a well-armed ship before he himself turned pirate. He went eastward of the Cape of Good Hope, and is said to have ravaged up to the Malabar coast. After about three years of this, he incautiously returned to America, was arrested in Boston, tried, and, after some delay, hanged as a pirate at Execution Dock. About £14,000 is said to have been recovered from him, but captain Kidd's treasure, buried somewhere round about his old haunts, is traditional.

On the day that the battle of the Nile was fought (1st August, 1798) the Bombay marine regulations were revised, and relative rank given to its officers and those of the company's land forces. New rates of pay were laid down, and retiring allowances instituted, but also, for the first time, private trading, which had been allowed up till then, was prohibited. A commodore, superintendent, and master attendant were appointed at Bombay, forming a marine board, and in fact the marine was re-organised into a regular naval service, its duties being defined as:—

I. The protection of trade. II. The suppression of piracy, and general duties as vessels of war. III. The convoy of transports, or carriage of troops, if necessary. IV. The prosecution of marine surveys.

Throughout its whole career, the service was always under great difficulties in securing a supply of suitable men, and up to this time

it lay within the power of the king's ships to press men from the company's cruisers, though, later on, this power was taken from them. Of course this was freely done in the case of the company's trading ships, but during wartime, at least, it does not seem that the crews of the East Indiamen always resented being so taken, for, in the journal of Mr. Thomas Addison, mate of the company's ship "Brunswick," the following entry appears, dated 2nd May, 1805 :—

"About this time," he says, "the men, many of them, were very plaguey about giving themselves up to the ships of war, till at last, the captain, to prevent further annoyance, sent every man on board the H.M. frigate, who, taking all worth having, returned the rest, about 30 of the lame and awkward, to the ship."

Even at this length of time, one can, I think, sympathise with the exasperated mate at seeing all his "scallywags" returned, every fit man having been taken. Anyhow, except in wartime, there was always difficulty in manning vessels, and even later on, in the Indian navy days, the complements were largely recruited from the jails, to a great extent, I imagine, by merchant seamen who had committed some offence in order to avoid sailing in their ships. In this respect I must here refer to the long connection between the Bombay marine and Indian navy and that well known institution the Marine Society, who, for nearly three-quarters of a century supplied the service, from the "Warspite," with a never failing supply of smart young seamen, of whose gallantry and devotion to duty in these troublous waters there are many records.

As I have said before, the Bombay marine, or Indian navy, was represented in almost every operation of any consequence that took place in eastern waters, in co-operation with the royal navy, besides affording protection to the trade of the Red sea, Persian gulf and Malabar coast. Instances of this are the first and unsuccessful attack on Pondicherry in 1748 under admiral Boscawen, who commanded what is said to have been the largest fleet ever seen in the East Indies, comprising no less than 14 of the company's ships, with over 3000 men; the action fought in 1759 under admiral Pocock, who assumed command after the death of vice admiral Watson; the capture of Pondicherry under admiral Cornish in 1761; the capture of Bourbon and Mauritius (1809-10); the conquest of Java from the Dutch (1811); the attack and reduction of Mocha (1820); the first Burma war; the final defeat of the piratical Arabs in the Persian gulf; the capture of Aden (1838); the first China war (1840-42), (in which the Indian navy was represented by a fine squadron of six steam vessels, the "Auckland," "Sesostris," "Akbar," "Memnon," "Medusa," and "Ariadne," and earned the warm approbation of admiral sir William Parker, under whom they served); the Maori war in New Zealand; the siege of Mooltan in the Punjaub (the first instance of a purely naval force being engaged in military operations seven hundred miles from the sea); the second Burma war; the Persian war of 1855; the China wars of 1856-7 and 1860, including the capture of Canton, the Taku forts, Fatshan

and Pekin, and the great Sepoy revolt of 1857-9, which marked the end of the company's rule, during which it was represented by a naval brigade nearly 2000 strong with 40 guns, serving in detachments in Bengal and Assam.

I should also mention that in 1830 the first steam vessel from Bombay to Suez, the company's steamer "Hugh Lindsay," was commanded during this experimental voyage by commander John Wilson of the marine; it took 21 days on the passage, and afterwards, in 1838-9, a steam packet service was instituted as an integral part of the marine, which from this date exchanged all its sailing vessels for steamers. From this it will be seen that the services rendered by this small but efficient force had been of the most varied character; but it was not until after it had been reorganised by captain sir Charles Malcolm, R.N., the first naval officer to become its superintendent, that its status was settled as the Indian navy, or relative rank of a sort established with the officers of the royal navy. Although as I have said, it was continually co-operating with the royal navy, there had been at times considerable friction between the two largely owing to the ambiguous position which the Indian force occupied. For instance, the question of flags and pendants of command was a fruitful source of trouble. From their earliest years, the Bombay marine had been in the habit of flying the company's white and red striped ensign, as to which, it may at once be said, no trace of any formal grant has ever been discovered. It was also the custom for the senior officer of the service to display a red broad pendant, and for all ships to show a common pendant in the same way as the king's ships, but certainly without the sanction of the home authorities. Admiral Watson, who was commander-in-chief in the East Indies from 1754 to 1757, apparently did not disapprove of this; but matters were at last brought to a head when, in 1764, Captain Brereton of H.M. ship "Falmouth," on arriving at Batavia ordered commodore Watson, an officer of tried ability and distinction, of the company's frigate "Revenge" to strike his common pendant, which he positively refused to do. Mutual recriminations seem to have followed, and next morning the "Revenge" was seen to be clearing for action, with a party of armed men in the maintop, evidently to prevent any interference with the pendant. However, eventually, at the instance of the other officers of the "Revenge," it was struck and handed over to the "Falmouth." Commodore Watson was afterwards killed at the bloody battle of Tannah, on the mainland at the back of Bombay, in 1775, whilst in joint command of an expedition against the Mahrattas; a monument erected by the company in St. Thomas's cathedral at Bombay perpetuates his memory.

This example well illustrates the anomalous position of the Bombay marine at this time, for on the one hand it was recognised as a colonial naval force, whilst on the other it was treated as if it were a part of the mercantile marine, and later, even in the Indian navy days, when its position had been more or less regularised, an objection to the use of a broad pendant was made by the naval commander-in-chief, and it was then decided that the commander-in-chief of the Indian navy should

display a red pendant with a yellow cross, and the company's gold lion rampant in the upper canton. This was later on adopted as the official flag of the director, and I have flown it myself when afloat in R.I.M. vessels. The service now shows a blue ensign with the badge of the order of the Star of India in the fly, a blue bordered jack, and a plain red pendant for ships in commission.

In 1863 the Indian navy was abolished; all European seamen were discharged, and the Bombay marine, sadly shorn of its former importance, came into being again as a transport service, and was manned, as it is to-day, by the sea-faring Mahomedans from the Ratnigiri district (about 100 miles south of Bombay), who are the descendants of some of those coast pirates with whom the old Bombay marine waged such bitter warfare in the 17th century.

Although I have dwelt upon the past history of the marine at some length, I have barely touched the fringe of it; but I have said enough, I hope, to show that this small and little-known service has a past of which it may well be proud.

In 1877, captain (afterwards admiral) Bythesea, V.C., in his capacity of naval adviser to the Indian government, re-organised the entire service, divided it into an eastern and a western division, with dockyards at Bombay and Calcutta, and defined its duties as follows:—

I. Transport of troops and government stores. II. The maintenance of "station" ships at Aden, the Andamans, Burma, and the Persian gulf, for political, police, lighting and other purposes. III. The maintenance of gunboats on the Irrawaddy and Euphrates. IV. The building, repair, and maintenance of all local government launches and vessels, and those used for military purposes. V. The marine survey.

The Indian Marine Acts of 1884 and 1887 provided for the taking over of Indian marine vessels in time of emergency, as was done during the late war; but long before this, in 1871, the government of India had purchased two coast defence vessels, the "Magdala" and "Abyssinia," as the nucleus of an Indian defence force. These were reinforced in 1889 by seven 1st-class torpedo boats, and in 1892 by two new torpedo gunboats—the "Assaye" and "Plassy." An Indian defence squadron was formed and placed under the command of a captain of the royal navy, the officers being drawn from the royal navy and Indian marine, the crews being partly lascars and partly seamen of the Royal navy. This squadron lasted until 1903, during which time the officers of the R.I.M. went through regular courses of gunnery and torpedo, signals, etc.; it was then abolished, partly, no doubt, owing to the fact that the vessels were becoming obsolete, and partly owing to the expense. I should add that at least one lieutenant of the Indian marine was always serving on board the flagship of the East Indies squadron for training, up to the war, and that a very large number of officers up to then had passed through the "Excellent" and "Vernon" lieutenants' courses at Greenwich, as well as the signal school, many of them having passed through all four courses. This privilege, I believe, is to remain in

abeyance temporarily, while the future of the service is under consideration; but there are six officers now at home on leave (lieut.-commanders and lieutenants) who are going through short courses of gunnery, torpedo, mining, anti-submarine work and gas, etc.

It will be seen, therefore that, during the years prior to the war, the royal Indian marine had been able to keep in touch with the royal navy, while carrying out their own particular duties. During the war, all their vessels were taken over by the Admiralty, and two of the big troopships, the "Dufferin" and "Northbrook," became in turn the flagship of the commander-in-chief in the East Indies. The third big troopship, the "Hardinge," took an active part in the defence of the Suez Canal during the attack upon it by the Turks in 1915, was heavily engaged and somewhat knocked about. The "Lawrence" and other vessels took part in the operations in the Shat-el-Arab and Tigris, while the rest were employed under the white ensign in the Persian gulf and Red sea. In all cases the crews were composed of their own Indian lascars, supplemented by naval ratings, and under these conditions the Indians appear to have acquitted themselves very well, and to have proved, by no means for the first time, that the active and docile Mahomedan seaman, of the Ratnigiri district at any rate, can, if properly treated and led, be trusted under fire or in an emergency.

I am permitted by vice-admiral sir Ernest Gaunt, the then commander-in-chief in the East Indies, to say that he formed a very good opinion of these men, notably during an outbreak of fire on board his flagship, which from its proximity to the magazine, might well have had serious results.

Time will not permit me to speak in any detail of the services rendered by the officers of the royal Indian marine during the war. Suffice it to say that its officers, both on the active and retired lists, were to be found in almost every theatre of war, sometimes with temporary military or naval rank, and the list of war honours received by them shows that they well upheld the old traditions of their service; and, as a mark of recognition, officers of the royal Indian marine now receive their commissions direct from his Majesty, instead of, as heretofore, from the Viceroy of India.

In 1920, in order to attempt to establish a closer co-operation, and a more intimate relation between the R.I.M. and the R.N., which experience during the war had shown to be necessary, a rear-admiral on the active list was appointed to the dual post of senior naval officer at Bombay and director of the royal Indian marine, and it was hoped that the government of India would consent to carry some part at least of the necessary naval local defences and auxiliary services in the great Indian ports in the case of a national emergency, since the absence of any such effective organisation had been apparent during the late war. In order that this should be done, it was obviously necessary that the service as it stood should be thoroughly re-organised, so as to give the director some status commensurate with his position, in order that he

might be enabled to represent to government effectively points for their consideration. This was not done, with the result that after a time the director withdrew from the appointment, and has not been replaced by a naval officer. The Bombay dockyard, which was until lately the principal refitting and storing base of the East India squadron, has now been abandoned by them in favour of Trincomalee, which has been re-opened.

As to the administration of the marine, it was briefly as follows, and, with one important exception, remains the same to this day. The royal Indian marine is under the army department. Its head, therefore, is the army member of council, or, in other words, the commander-in-chief in India, and its affairs are administered by the marine department, consisting of some subordinate officials who are called deputy secretaries, under the control of the secretary to the army department who is either a soldier, or a member of the Indian civil service, and takes his orders on marine matters from the army member and who is, under the new legislative arrangements, probably one of the most over-worked men in India. The result is, that the R.I.M. is but a negligible branch of the army department, for the secretary having practically no time to spare for the consideration of marine matters, the administration naturally falls into the hands of his subordinate and the director is deprived of any real authority as regards administration.

It is to the secretary to the army department at Simla, or at Delhi, as the case may be, say 800 miles away, under the most favourable circumstances, that the Director of the Indian marine submits his proposals. The budget of the marine, until quite lately, was entirely controlled by the army department as a separate section of their budget; every rupee had to be strenuously fought for, and it is not altogether to be wondered at that, apart from sympathy, little could be obtained towards any improvement in the existing marine. However, one great improvement has, I believe, been made quite lately, and that is giving the director the control over his own budget, which is presumably now entirely separated from army funds, though the service still remains under the control of the army department.

The result of the arrangement which I have briefly outlined, is that the status of the director is not what it should be, being such as to absolutely preclude him from addressing even his own chief, the army member, direct. Every submission or proposal goes to the secretary to the army department, who is the virtual head of the administration. Until the director of the Indian marine is given a proper status, such as that of a Secretary to the government of India, with consequently the right of direct access to the Viceroy, it will not be possible for him to ensure that his recommendations reach the proper quarters, still less that they receive the attention and consideration that is their due.

There should also be a senior officer of the R.I.M. at the seat of Government as a *liaison* or staff officer, and a small administrative staff at Bombay, where the Director must necessarily be, and, until these things

are done, no expansion or re-organisation of the service seems possible, and the interminable delays that now take place and are bound to take place under the present system and which effectively assist to block any sort of reform, will continue.

The Army in India committee, which issued its report in June, 1920, advocated these reforms amongst others, and made extensive recommendations as regards the conditions of service, pay and pensions, and recruiting and training for the Indian *personnel*; but, although these appear to have been accepted in principle, no improvement of the status of the director was considered necessary. In other words, the marine department had a tight hold on the administration, which it would not in any degree relax. The proposal for a *liaison* officer at the seat of government, although at first agreed to, was also turned down at the very last moment by the finance authorities on the ground of expense, with the result that the director, as has been said before, withdrew.

As regards the peace duties of the marine, so far as the transport of troops is concerned, it has always been responsible for, and has always successfully carried out, what may be called the interior transport work of the Indian empire by sea, and also assists in other transport work as far as Suez. But, as a matter of fact, it was decided about eighteen months ago to lay up the three big troopships, with a view to their ultimate sale as part of a scheme of re-organisation, so that trooping should not now form part of their duties, except in so far as it may be necessary to move small bodies about in the station ships, which are all fitted for that purpose. The Calcutta dockyard at Kidderpore was closed down in 1920 as a matter of economy, in spite of the dissent of the Bengal government.

It is clear, however, from a perusal of the Marine list for October, 1922, the latest available, that, though the troopships have been laid up, there has been no reduction whatever in the number of officers; in fact, so far as the executive branch is concerned, there has actually been an increase of 12, so that there must have been, for some time past, a considerable number on full pay, practically without employment; this seems to indicate that the elimination of the troopships has by no means been decided upon, although the training which they give to young officers, one of the points pressed by those who are opposed to the abolition, is practically nil, and the work that they do can be done, on the whole, more cheaply and expeditiously by means of vessels chartered locally by the naval transport department, of which the D.R.I.M. is the head, and which is staffed by the officers of that service.

The Indian marine manages the dockyard at Bombay and the small repairing yard at Mandalay; it also builds customs and police launches and yard craft for the Indian and provincial governments. It has charge of the lighthouses, etc., on a portion of the Calcutta coast, on the whole of the Burma coast in the southern part of the Red sea, and is responsible for all buoyage and lights in the Persian gulf. R.I.M. vessels are also used for the conveyance of high officials on visits of inspection to the Persian gulf, to the islands off the coast of India, and down the Burma coast. It

is also entirely responsible for the marine survey in Indian waters. All the ships used to be in constant use, and, as a matter of fact, were insufficient in number for the duties required of them.

The *personnel* consists of about 190 executive and engineer officers of all ranks, commissioned and subordinate (all Europeans); the former entered from the "Conway" or "Worcester," and in some cases direct from the mercantile marine, by nomination by the secretary of state; many of the younger executive officers served during the war as midshipmen or acting sub-lieutenants, R.N.R., and there are a few ex-naval ones. Officers of the service are employed as port officers and assistant port officers at the principal ports in India and Burma, and at Chittagong and Aden, while the most important posts of principal engineer and ship surveyor and their assistants to the governments of Bengal, Bombay, Madras, and Burma are all held by fully qualified engineer officers of the royal Indian marine. There are also about 28 European warrant officers, boatswains (these used to be called gunners) and wireless operators, and 25 clerks drawn for the most part from what is known now in India as the domiciled community. There is no paymaster branch, the captain being responsible for this office; and the medical service is supplied by assistant surgeons of the I.M.S., also warrant officers. Promotion in the commissioned ranks is by seniority, except in the case of war service, subject to passing a fairly stiff examination for each step up to the rank of commander.

The crews are all Indians, including all petty officers (serangs and tindals), and artizan ratings, and, with the troopships running, consisted of about 2,000 men, now reduced to about one-third of this number; and there are at present seven Indian boatswains, a rank introduced in 1922 as an experiment, to fill vacancies in the European list, and which bids fair to be a great success.

I must here say a word about the signal school which was established at Bombay as an experiment during the war by the naval commander-in-chief: this has proved such a remarkable success that the government of India has been prevailed on to allow it to continue, and it shows the excellent results that can be obtained by the systematic training of young Indians. Intelligent lascar boys are taken, and their standard of efficiency is really quite remarkable, and must be seen to be believed. Hardly any of them understand more than a few words of English, if any, but they are taught the flags and their uses, letters and signs in semaphore, etc., and take the former down in words, and I think it is very likely that their ignorance of the language is really a premium on accuracy, as guessing is entirely eliminated. Be that as it may, they are wonderfully good and remarkably keen, and will stand comparison with any naval signalman. The head of the school is, or was, a lieutenant-commander R.I.M., who had himself qualified in the signal school at Portsmouth.

Admiral of the fleet viscount Jellicoe, I know to have been very much struck by the smartness and intelligence of these lads, and I have reason to believe that his proposal to establish training ships for boys at Karachi

and Bombay, in connection with his proposed expansion of the R.I.M. into an Indian navy was partly due to what he saw at Bombay. However, his scheme was not accepted by the government of India, so I will say no more about it.

The ships are run on a routine which approximates as closely as possible to that of the royal navy, the usual parades and inspections being carried out. General drills, such as fire and collision stations, boat drill, pulling and sailing exercises, laying out bower and stream anchors, etc., are regularly practised—in fact, everything is done to keep up the traditions of a government service. The ships are all fitted with saluting guns, and under certain circumstances fire salutes in Indian waters.

The difficulty, as ever, is in the *personnel*. The Indian is a good seaman on the whole, though his physique is not equal, perhaps, to that of a European, but he is wiry and hard-working, and, so far as the Ratnigiri man is concerned, very amenable to discipline, so long as he is fairly treated; but, unfortunately, owing to the conditions of service in the Indian marine, together perhaps with its longer absences and its more rigid discipline, the mercantile marine attracts him far more.

In the first place, his engagement in the Indian marine is not for any fixed period. "Two years or less, at the discretion of the director" is the formula, which means in plain English that he might, and sometimes did, find himself thrown upon the streets of Bombay without warning, when his ship was refitting, for instance. The pay was insufficient, and the scale of victualling required consideration. There was no possibility of any leave on pay, owing to the terms of engagement, nor can a member in practice earn a pension, except in a very few cases, although a certain number of men are supposed to be pensionable. The clothing allowance is insufficient. There is no system of training. The only system of recruitment is to send the *serang* down to Ratnigiri to pick up any one available, or else to scour the slums of Bombay for hands. But what absolutely killed the *personnel* was the system of having four separate classes of lascars and stokers, so many of each being laid down in the complement. If it was impossible to get good men as lascars or stokers 1st class on the highest rate of pay, you may imagine what the 4th class were like, even if they could be obtained at all. The captain of one of the troopships, in writing and complaining of the crew that he was obliged to sail with on one occasion, described them as the flotsam and jetsam of a great city. So they were, but representations made to the marine department that there was a certain risk in sending ships to sea manned in this way had no effect.

I can only say that I came away from India filled with the greatest admiration and sympathy for the officers of the royal Indian marine, who worked afloat under difficulties that few outside the service had any idea of, but who always performed their duties to their own credit and to that of the service. In the case of bad breaches of discipline, they

had no powers except those given them under the Indian Merchant shipping act, and it is greatly to their credit that such breaches scarcely ever occurred.

It is only fair to say, however, that some of these things have been remedied, or have remedied themselves. The question of pay, for instance, was solved for a time by a threatened strike of merchant seamen and firemen in Indian ports, which resulted in a rise of 50 per cent. all round, and which, of course, had to be extended to the men of the R.I.M. Sufficient alterations in the scale of victualling were made at Bombay, and the men, instead of being discharged indiscriminately, were employed on their ships and about the dockyard during refit; but now, I believe, they are to be allowed regular leave, accumulating for two years if necessary, which is certainly a great step in the right direction, but with regard to recruiting and training, nothing appears to have been done up to the present.

The scheme of re-organisation proposed by the director in 1922 was based on the recommendations of the army in India committee of 1920, and of a conference that sat at Bombay two years later, at which the naval commander-in-chief and the administrative heads of the service were present.

Briefly, it was proposed to do away entirely with the troopships, which were considered unnecessary and expensive to run, so reducing the Indian *personnel* by about one half. It was further decided to institute a system of leave, with or without pay; to introduce a system of continuous and pensionable service in a manner suitable to Indians; to revise the pay, victualling and clothing arrangements, and, above all, to establish a training ship which should also be a general *dépôt*, to ensure a proper system of recruitment and training, and so to break down the pernicious system which still exists, the effect of which is to place the *serangs* in a position of undue power and influence.

It was also proposed gradually to substitute Indians for European warrant officers, and to extend warrant rank to the engine room and artizan departments. I must explain here that warrant rank is spoken of in the army sense, which is by no means the same as in the royal navy. It was not intended to depart from the principle of station ships in peace time, though their duties might eventually become somewhat different to what they were at present. The marine survey was to continue, as were also the port appointments, subject to any necessary reduction, should the service in time develop. The result of this would be to cut down the *personnel* to an absolute minimum, but one that would still keep the pick, filling it up and maintaining it by means of a common entry and training, combined with reasonably attractive conditions of pensionable service; but although it was hoped eventually to depend entirely on the recruitment of boys, the requirements of the present and near future rendered it necessary to depend, for some time to come, largely on special entries, and it was hoped that the definite attractions which this scheme would offer would bring many of the better sort of men back to the marine,

particularly if they were allowed to count their periods of former service towards pension.

The underlying idea, which was to be worked up to as a first step, was that the R.I.M. should eventually be in a position to undertake, in addition to its purely peace duties, the responsibility for such auxiliary services dependent on sea-service as would require to be established on a national emergency arising; not only as regards trained *personnel*, or at any rate of a nucleus of trained *personnel*, but also supply of adequate material in its widest sense, which would demand some organisation that would readily obtain and augment such supply, as necessary.

I refer to such services as, for instance, the examination service, mine-sweeping, patrolling and anti-submarine work, bomb-laying and maintenance, where necessary; defensive mining, and perhaps, later on, coastal intelligence. It was proposed that practical training in these matters should be systematically carried out in the depôt ship, and the sympathetic assistance of the Admiralty was confidently hoped for. In this way, not only could a trained pensioner reserve be gradually built up, but time would show whether, or to what degree, it would be possible to extend the scope of the service as a fighting force, reverting, for example, in time to the old conditions of the Indian defence squadron, and allowing them to undertake the policing of the Persian gulf, and other Indian waters maybe, as an auxiliary to, or even as an integral part, of the East Indies squadron; should the character of the service ever be altered to that extent, it would naturally follow that the ships of the Indian navy, or Indian marine, would be commanded and officered by their own people, whilst remaining under the direct control of the commander-in-chief East Indies, by arrangement with the Government of India.

As regards the officers, of course there would be a surplus, but it was understood that the Government of India was ready to treat them on the same basis as the Indian army officer who had been axed. New entries to the extent of about four a year, so far as the executive branch was concerned, it was proposed to obtain from the "Conway" and "Worcester" training ships, and from the nautical college at Pangbourne, and their educational scheme included a naval instructor, to be lent by the Admiralty, and the use of that very suitable establishment at Coonoor, in the Nilgiri hills, used during the off season by the officers of the marine survey.

The formation of some form of volunteer R.I.M. reserve for officers was also considered, but presented difficulties which I do not propose to enter into here, though they must not be lost sight of, particularly as no R.N.R. officers from among those serving in Indian waters would be available on the outbreak of war.

At the time that this scheme of organisation was submitted, nearly two years ago, the government of India had just acquired one sloop, the "Lychnis," by purchase, and another, the "Ceanothus" and two P.C. boats, as a gift from the Admiralty. These sloops were renamed the

"Cornwallis" and "Elphinstone" respectively, and the P.C. boats the "Balughi" and "Pathan," after two of the old defence torpedo boats. They were supplied just as they were, guns and all, and had, of course, to be extensively altered for service in a hot climate; the sloops are both in commission, and have proved to be most useful and suitable vessels. At that time the old troopship "Dalhousie," purchased 30 years before, had finally come to an end of her effective service, and so was at once available as a depôt ship, and, pending a final decision, has been kept off the sale list and used as such ever since; but no alterations with a view to making her a training establishment have, of course, been made. It was proposed—should the government think fit to approve the re-organisation suggested—to keep one sloop and one P.C. boat as tenders to her for instructional purposes, and to commission one pair, at least, of the eight trawlers built during the war, which have been kept at Bombay ever since, as one mine-sweeping unit, also for instructional purposes, so that suitable vessels were at hand to make a start; but nothing has yet been decided, and it would seem that the tendency is to resurrect the troopships, on the grounds that service in them is good training, and also that the disposal of them will lead to loss of prestige.

In conclusion, I must refer to another difficulty which may perhaps be sufficiently indicated by the word Indianisation, as applied to the officers. It must be remembered that there is a strong inclination amongst the members of the legislatures and of large public bodies in India towards the creation of an Indian navy, as well as an Indian mercantile marine, and a series of resolutions which were introduced by Sir Sivaswamy Aiyer, approved by the legislative assembly and accepted by the government of India two years ago, recommended "the liberal recruitment of Indians as executive and engineer officers in the royal Indian marine, the establishment of a nautical college in Indian waters [*sic*]; the establishment of Indian apprenticeships for training in any ships enjoying any subsidy or benefits from the Indian government, and the establishment of State scholarships for providing instruction in the nautical training establishments in England, pending the formation of such a college or establishment in India.

In addition, it recommended the encouragement of shipbuilding, and the development of an Indian mercantile marine by a system of bounties, subsidies, and such other measures as have been adopted in Japan, the acquisition of training ships by gift or otherwise from the imperial government, and the construction of the necessary dockyards and engineering workshops in one or more ports.

Where the money for this most expensive and rather mixed programme is to come from we are not told, but the present director of the royal Indian marine has been for some time past sitting as the chairman of a committee which is inquiring into the question of the establishment of an Indian mercantile marine.

Now, with regard to this programme, although an Indian national

navy so-called is not specifically mentioned in the resolution, there is no doubt whatever that it is contemplated: a navy, that is to say, entirely officered and manned by Indians, into which the Indian marine is ultimately to be expanded.

As this indianisation must necessarily be of gradual growth, what I understand it to mean is that Indians should be eligible at present to enter the government service as young officers in precisely the same way as Europeans, Australians, Canadians, or New Zealanders, and therefore be in a position to rise to the highest ranks and swamp the others out, if they can. No one can object to that, and I, for one, am certainly not prepared to maintain for one moment that, given proper facilities, supervision and training, young Indians would not make good; but the practical difficulty of getting thoroughly suitable young men from a country where the various sections of the population are separated by religious and social feeling into innumerable divisions, and where the supply of suitable young men, even for army officers, is said to be so extraordinarily small, and where there is not the least sympathy, inherited or otherwise, with the sea, is, I think, much greater than the advocates of indianisation imagine.

The vital question of preliminary training is another point. If Indians are to have the same opportunities as Europeans, who, after all, have the sea-habit in their very blood, the importance of which is so little realised, they must undergo the same training, under the same conditions and in the same way. Without such training, I do not believe that the Indian will ever be able to compete with the European with any degree of success.

Whether the formation of a training establishment in India, so strongly advocated in certain quarters, exclusively for Indians and divorced from any association with similar establishments elsewhere, will ever have a chance to provide the type of officer required, either for a future Indian navy or even for an Indian mercantile marine, is a matter which I know people who have infinitely more experience than I have the gravest doubts about.

In the event of an Indian navy, however small, materialising, its growth must necessarily be slow, and in these remarks I have only attempted to indicate the preliminary steps which should be taken at the present time, commencing with small things, and expanding gradually on the lines best suited to ensure its ultimate efficiency. So far as the manning of fighting ships by Indian ratings alone is concerned, history appears to have nothing to tell us; but what is written on every page of the records of the old Bombay marine, such as they are, is the excellent service that the Indian seaman performed in conjunction with his European colleague under European leadership, and I am convinced that, so far as he is concerned, there is a fund of hitherto quite unsuspected character and intelligence to be drawn upon, which, if fostered and encouraged from boyhood, will be found to produce most satisfactory results.

APPENDIX A.

SHIPS BUILT IN R.I.M. DOCKYARD, BOMBAY, FOR THE ROYAL NAVY.

Year.	Names and Description.	Guns.	Tons.
1805	Pitt (frigate)	14	248
1807	Salsette (frigate)	36	885
1810	Minden (ship)	74	1,681
1813	Cornwallis (ship)	74	1,767
1814	Victor (brig)	18	384
1815	Wellesly (ship)	74	1,745
"	Zebra (brig)	18	385
"	Sphynx (brig)	12	239
1816	Cameleon (brig)	12	239
"	Amphitrite (frigate)	38	1,064
1817	Melville (ship)	74	1,767
"	Trincomalee (frigate)	46	1,065
1818	Malabar (ship)	74	1,715
1819	Seringapatam (frigate)	38	1,152
1821	Ganges (ship)	84	2,289
1822	Madagascar (frigate)	46	1,164
1824	Asia (ship)	84	2,289
1828	Bombay (ship)	84	2,285
1829	Andromeda (frigate)	46	1,166
1831	Calcutta (ship)	84	2,298

APPENDIX B.

STRENGTH OF BOMBAY MARINE AND INDIAN NAVY AT DIFFERENT PERIODS.

1766.

Ship.	Guns.	Pdrs.	Ship.	Guns.	Pdrs.
Defiance	20	9	Fox	8	4
Revenge	20	12	Dolphin (schooner)	8	8
Bombay (grab)	20	9	Tiger	8	8
Royal Admiral	18	6	Fly (allivat)	5	4
Eagle (snow)	16	6	Wolf	8	3
Drake (snow)	14	6	Beagle	8	3
Success	12	4	Passard	6	3
Tartar (snow)	12	4	Swift	5	4
Fancy (bomb ketch)	8	4			

1802.

Ship.	Guns.	Description.	Ship.	Guns.	Description.
Cornwallis ...	56	Frigate	Viper ...	14	Brig.
Bombay ...	38	"	Princess Augusta ...	14	"
Teignmouth ...	16	Sloop	Princess Royal ...	14	"
Mornington...	22	"	Comet ...	10	"
Ternate ...	16	"	Intrepid ...	10	"
Antelope ...	14	Brig	Queen (ketch) ...	14	—
Fly ...	14	"	Rodney ...	14	—
Drake ...	18	"	and about six others,		
Panther ...	14	"	besides small craft.		

1858.

Captain G. G. Wellesley, R.N., commodore and commander-in-chief.

Ship's name.	Tonnage.	Horse-power.	Armament.	Description.
Ajdaha... ..	1,440	500	8 guns ...	Steam frigate.
Akbar	1,202	350	6 " ...	"
Assaye	1,800	650	10 " ...	"
Auckland	946	220	6 " ...	"
Berenice	756	220	4 " ...	Steam sloop.
Clive	387	—	18 " ...	Sloop of war.
Clyde	300	60	3 " ...	Steam gunboat.
Constance	182	—	3 " ...	Schooner.
Elphinstone	387	—	18 " ...	Sloop of war.
Euphrates	255	—	10 " ...	Brig.
Falkland	494	—	18 " ...	Sloop of war.
Ferooz	1,450	500	8 " ...	Steam frigate.
Hugh Rose	300	60	3 " ...	Steam gunboat.
Lady Canning... ..	527	160	4 " ...	Steam sloop.
Mahi	157	—	3 " ...	Schooner.
Punjaub	1,800	700	10 " ...	Steam frigate.
Semiramis	1,031	250	6 " ...	"
Tigris	258	—	10 " ...	Steam sloop.
Victoria	705	230	5 " ...	Steam frigate.
Zenobia	1,003	280	6 " ...	"

Besides 11 transports and eighteen armed river steamers (flotilla.)

APPENDIX A.

SHIPS BUILT IN R.I.M. DOCKYARD, BOMBAY, FOR THE ROYAL NAVY.

Year.	Names and Description.	Guns.	Tons.
1805	Pitt (frigate)	14	248
1807	Salsette (frigate)	36	885
1810	Minden (ship)	74	1,681
1813	Cornwallis (ship)	74	1,767
1814	Victor (brig)	18	384
1815	Wellesly (ship)	74	1,745
"	Zebra (brig)	18	385
"	Sphynx (brig)	12	239
1816	Cameleon (brig)	12	239
"	Amphitrite (frigate)	38	1,064
1817	Melville (ship)	74	1,767
"	Trincomalee (frigate)	46	1,065
1818	Malabar (ship)	74	1,715
1819	Seringapatam (frigate)	38	1,152
1821	Ganges (ship)	84	2,289
1822	Madagascar (frigate)	46	1,164
1824	Asia (ship)	84	2,289
1828	Bombay (ship)	84	2,285
1829	Andromeda (frigate)	46	1,166
1831	Calcutta (ship)	84	2,298

APPENDIX B.

STRENGTH OF BOMBAY MARINE AND INDIAN NAVY AT DIFFERENT PERIODS.

1766.

Ship.	Guns.	Pdrs.	Ship.	Guns.	Pdrs.
Defiance	20	9	Fox	8	4
Revenge	20	12	Dolphin (schooner)	8	8
Bombay (grab)	20	9	Tiger	8	8
Royal Admiral	18	6	Fly (salivat)	5	4
Eagle (snow)	16	6	Wolf	8	3
Drake (snow)	14	6	Beagle	8	3
Success	12	4	Passard	6	3
Tartar (snow)	12	4	Swift	5	4
Fancy (bomb ketch)	8	4			

1802.

Ship.	Guns.	Description.	Ship.	Guns.	Description.
Cornwallis ...	56	Frigate	Viper ...	14	Brig.
Bombay ...	38	"	Princess Augusta ...	14	"
Teignmouth ...	16	Sloop	Princess Royal ...	14	"
Mornington... ..	22	"	Comet ...	10	"
Ternate ...	16	"	Intrepid ...	10	"
Antelope ...	14	Brig	Queen (ketch) ...	14	—
Fly ...	14	"	Rodney " ...	14	—
Drake ...	18	"	and about six others, besides small craft.		
Panther ...	14	"			

1858.

Captain G. G. Wellesley, R.N., commodore and commander-in-chief.

Ship's name.	Tonnage.	Horse-power.	Armament.	Description.
Ajdaha... ..	1,440	500	8 guns ...	Steam frigate.
Akbar ...	1,202	350	6 " ...	"
Assaye ...	1,800	650	10 " ...	"
Auckland ...	946	220	6 " ...	"
Berenice ...	756	220	4 " ...	Steam sloop.
Clive ...	387	—	18 " ...	Sloop of war.
Clyde ...	300	60	3 " ...	Steam gunboat.
Constance ...	182	—	3 " ...	Schooner.
Elphinstone ...	387	—	18 " ...	Sloop of war.
Euphrates ...	255	—	10 " ...	Brig.
Falkland ...	494	—	18 " ...	Sloop of war.
Ferooz ...	1,450	500	8 " ...	Steam frigate.
Hugh Rose ...	300	60	3 " ...	Steam gunboat.
Lady Canning... ..	527	160	4 " ...	Steam sloop.
Mahi ...	157	—	3 " ...	Schooner.
Punjaub ...	1,800	700	10 " ...	Steam frigate.
Semiramis ...	1,031	250	6 " ...	"
Tigris ...	258	—	10 " ...	Steam sloop.
Victoria ...	705	230	5 " ...	Steam frigate.
Zenobia ...	1,003	280	6 " ...	"

Besides 11 transports and eighteen armed river steamers (flotilla.)

1899.

ROYAL INDIAN MARINE.

Ship.	Description.	Tons.	Ship.	Description.	Tons.
Canning ...	Troopship ...	2,246	Bhamo ...	River steamer ...	172
Clive ...	" ...	2,746	Lawrence	Despatch steamer	1,277
Comet ...	Gunboat ...	117	Mayo ...	Station ship ...	1,127
Dalhousie...	Troopship ...	1,534	Minto ...	Despatch vessel	1,050
Elphinstone	Despatch vessel	602	Nancowry	Survey ship ...	—
Investigator	Survey steamer	750	Sladen ...	River gunboat ...	—
Irrawaddy	River steamer ...	750			

NAVAL DEFENCE FORCE.

Magdala	...	...	...	Coast defence turret ship.
Abyssinia	...	...	...	"
Assaye ...	...	...	...	Torpedo gunboat.
Plassy ...	...	...	...	"
Mahratta	...	...	...	Torpedo boat, 1st class.
Rajput ...	...	...	...	"
Sikh ...	...	...	...	"
Gurkha ...	...	...	...	"
Pathan ...	...	...	...	"
Karen ...	...	...	...	"
Baluchi ...	...	...	...	"

1924.

Ship and tonnage.				Description.
Northbrook	6,100 tons	...	...	Troopships laid up.
Dufferin	8,260 tons	...	...
Hardinge	6,350 tons	...	...
Lawrence	1,260 tons (oil-burning turbine)	...	...
Clive	2,100 tons (	"	)	Political despatch vessel, Persian gulf.
Minto	1,152 tons	...	...	Station ship, Burma.
				Do. , Port Blair, Andamans.
Elphinstone	1,237 tons (ex-sloop)	...	...	(In commission.)
Cornwallis	1,290 tons	"	...	(Station ship, Aden?)
Baluchi (ex P.C.boat).				
Pathan	"			
Dalhousie	2,195 tons	...	...	Depôt ship.
Investigator	1,185 tons	...	...	Surveying vessel.
Palinurus	444 tons	...	...	" "

DISCUSSION.

[Owing to pressure on space it has not been possible to reprint in full the discussion which followed the lecture.—Ed.]

GENERAL SIR EDMUND BARROW, G.C.B., referred to the great services which the royal indian marine had rendered in connection with the transport arrangements for the Tel-el-Kebir campaign of 1882 and the Boxer rebellion; and said that he did not believe the royal indian marine could not be indianised successfully. The Indians were not bred to a sea life or interested in naval matters. GENERAL W. H. GREY, C.B., C.M.G., pointed out that the royal indian marine had been unjustly blamed for the failure of the transport services in the first part of the Mediterranean campaign. It was true that when the War Office took supreme control of the transport arrangements they were successful; but the officers who had been condemned for the failure were the same officers who were responsible for the success. The royal indian marine officers who organised the transport service of the advance on Baghdad had never received any recognition from the Indian government. COLONEL SIR CHARLES YATE, C.S.I., C.G.M., M.P. said that, as an old Indian officer he had always hoped that an Indian army might be developed out of the royal indian marine; he thought that a fine *personnel* might be created out of the native seafaring population; but was quite convinced that they would have to be officered by Englishmen. The speaker then retraced the various steps which had been taken to improve the status of the royal Indian marine officer up to the grant of the King's commission in 1918, and said that he hoped the lecture would focus attention on the importance of the service. VICE ADMIRAL SIR DRURY WAKE, K.C.I.E., C.B. said that he had commanded a squadron in the Persian gulf during the war, and associated himself with what admiral Mawbey had said. He thought that it had been a good thing to put a rear admiral at the head of the service. CAPTAIN H. T. A. BOSANQUET, R.N., referred to the connection between the Marine Society and the Indian marine. In 1800 a most gallant action had been fought between a snow of 10 guns, manned largely by boys supplied from the Marine Society, and a French privateer of 12 guns, which had been driven off. Sir Charles Malcolm, the superintendent of the Indian navy in 1831, had said that of all the boys supplied to the Indian navy not one had turned out a rogue or a vagabond. In 1881 the dockmaster of the Taff Vale railway had said that he had gone out to India in a leaky barque under a drunken skipper, and that they would never have reached port but for 20 boys from the Marine Society who were on board at the time. The Marine Society had supplied 40,000 recruits to the navy in recent times, and it was very strange that about one serving officer in ten knew of its existence. CAPTAIN WILFRED EGERTON, R.N., said that the only way to put the Royal Indian marine on to a proper footing was to make it an Indian navy, with a navy office at Delhi. It was useless to expect the government of India to spend £500,000 a year upon an organisation which was not a combatant navy or a transport service. He added that he would like to emphasise the debt of gratitude which was owed by the Indian marine to the lecturer. REAR ADMIRAL MAWBEY, C.B., C.V.O., thanked those who had taken part in the discussion, and gave an instance of how the "Lawrence," a ship of the Indian marine, had been sent to Kuwait during the war to make a naval demonstration, despite the fact that had she fired a gun her captain would have performed an act of piracy. THE CHAIRMAN moved a hearty vote of thanks to the lecturer and added that, on behalf of the institution, he would like to express gratitude for the opportunity given of placing a tribute to the Indian marine on their records. He associated himself with the remarks that had been made about indianisation. Votes of thanks to the chairman and lecturer were carried with acclamation.

BATTLES OF SALT, AMAN AND JORDAN.

(continued).

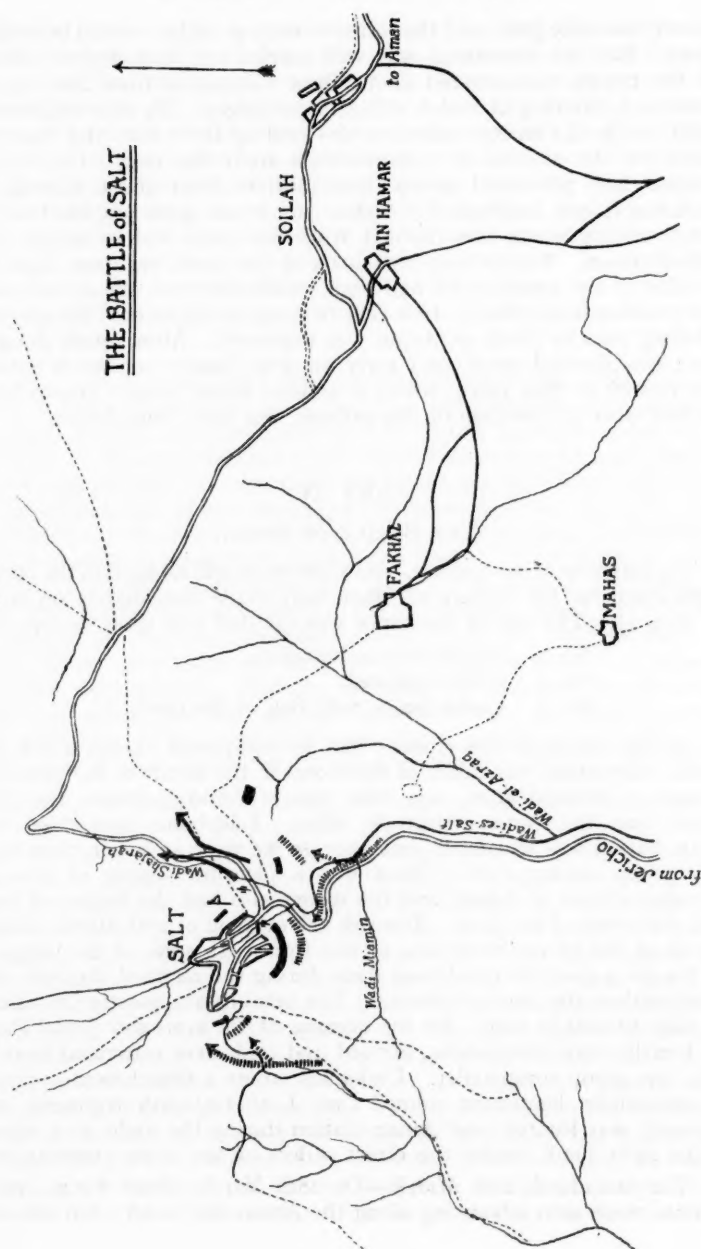
THE BATTLE OF SALT.

OWING to the difficulty of communication with the front, the group headquarters had moved to Salt on the evening of the 24th March. The defence of Salt was immediately undertaken by the group commander, colonel Ali Riza. Unfortunately it pelted with rain during the night of the 24th-25th and the day following. The men were soaked. In spite of this, however, great efforts were made, and by 10 a.m. we were prepared (Map 3.)

Arab treachery.—Realising the seriousness of the situation, group headquarters left Salt at 11 a.m. for Aman, to expedite measures for our resistance. About noon the enemy advanced from Salt road and combined a frontal attack with the envelopment of both our flanks. The Germans, together with the Turkish infantry, very weak in numbers, offered a stout resistance. About 2 p.m. fire was opened from the houses of Salt behind the troops which were in contact with the enemy. This treachery on the part of the inhabitants had a greater effect than the attacks of the enemy. Every now and then our unfortunate men had to turn away from the enemy and fire at the Arabs in their rear. A German machine gun detachment from the reserve was brought up and opened fire on the town at the first signs of treachery. As a result, the inhabitants took refuge in the houses and were obliged to cease fire. A little later, an enemy cavalry regiment entered the town by the north-west. The Arabs, taking courage, attacked our sanitary company, which was in the town, and began to murder our sick and wounded. The penetration of the enemy into the town made our position untenable. Only a small German detachment remained in reserve. It was sent to defend the threatened side of the town, and the advance of the enemy was checked for the time being.

This state of confusion lasted till 4 p.m., and meanwhile the hostile force had got round our left flank and kept the Salt-Aman road under fire. A little later, the whole danger of the enveloping movement was apparent. The weak forces were no longer able to hold their position, especially in view of the disaffection of the Arabs. But as we were entirely surrounded the retirement during the day was impossible. Till dark, a determined resistance was our only hope.

The retirement to Mana.—About 7 p.m. the troops in the front line were gradually withdrawn. Only the companies on the right and left flank and the post on the Aman road remained till the others had withdrawn. The road passes through a defile which was under the fire



of enemy machine guns, and the retreat—even at night—would be subject to loss. But the movement was well carried out in complete silence, and the troops concentrated about three kilometres from Salt on the Aman road, arriving at Soilah village at midnight. By this stubbornly-fought battle, the enemy's advance was held up for a day, and time was gained for the arrival of reinforcements from the rear. The critical situation had prevented group headquarters from going through to Aman and it, too, had halted at Soilah; for it was quite possible that the enemy cavalry which had reached Wadi Sir a day before might have reached Aman. Except two battalions of the 126th regiment, and one battalion of the 146th which had been withdrawn from the desert, there were no other forces there. In a visit to group headquarters, the question of falling back to Jirish or Aman was discussed. After much thought, Aman was decided upon, and early on 27th March our much-reduced force retired to that place, where it arrived before noon. Group headquarters went to a station on the railway, one hour from Aman.

PART IV.

THE BATTLE OF AMAN.

Organisation of the position.—As there were still no signs of the enemy, preparations for the defence of Aman were made immediately on arrival (see map 4). The line of resistance was divided into three sectors:—

- No. 1. 703rd German battalion.
- No. 2. 126th regiment.
- No. 3. Under major Said Bey of the 126th.

As the telegraph detachment had no equipment except a few telephones, advantage was taken of the stores in the hands of the post commander. Communication was thus quickly laid between the three sectors and the Aman telegraph office. Telephone connection with Aman station was already in existence, so we were at last in close touch with group headquarters. There was a plentiful supply of gun and rifle ammunition at Aman, and the troops also had the luxury of bread from the ovens of the post. Towards the evening of 27th March, isolated patrols of the enemy were seen on our front. In spite of the fatigue of the troops, a good deal had been done during the night of the 27th–28th to strengthen the Aman defences. The inhabitants, mostly Circassians, did their utmost to help. On the evening of the same day Jemal Pasha, the fourth army commander, arrived and took over command from Ali Riza, the group commander. Under his orders a detachment composed of commander lieutenant colonel Umr Lutfi 1st/146th regiment, mule regiment, was located near Aman station during the night as a support to the right flank, under the direct orders of the army commander.

The first attack, 28th March.—On 28th March, about 8 a.m., enemy columns were seen advancing along the Aman–Salt road. On the other

flank, the camel corps was approaching from the Wadi Sir. About noon, the column deployed and began the attack, supported by artillery fire. The attack was carried on throughout the day with great bravery, and was repulsed by our troops at all points. A second attempt was made towards evening with the object of enveloping our left flank. This was also repulsed with heavy loss by a counterattack executed by our right wing and the reserve under lieutenant colonel Umr Lutfi Bey, supported by the field guns and mountain battery. To show his high appreciation of this brilliant feat of arms the army commander presented the division with £T1,000, and at once accepted my proposal as to its distribution. The money was immediately divided in fixed proportions among the officers and men of the force, and acted as a spur to still further efforts on their part.

The second attack, 29th March.—The night of the 28th–29th was spent in unceasing efforts to strengthen our position. Our situation was thus greatly improved, and on 29th March the enemy renewed his attacks; an infantry division which arrived at noon took part, and the attack was directed on our right flank and centre. Wave after wave advanced and reached to within 500 yards of our position, where they were checked by the stubborn resistance of the troops in position, in co-operation with lieutenant colonel Umr Lufti Bey's force. Thirty English soldiers who had succeeded in penetrating a small valley east of the Aman–Salt road were captured. This second victory greatly raised the morale of our troops. I, myself, congratulated the troops on their prowess, and Jemal Pasha once more repeated his gift of £T1,000 as a mark of his profound appreciation. During the day a welcome reinforcement arrived at Aman, viz., 1st and 2nd/191st infantry; the storm company, 46th division, 1/23rd regiment—300 men belonging to drafts. The drafts were posted to the 126th, whose ranks were greatly reduced.

The third attack, 31st March.—Owing to the great casualties in these two attacks, the enemy spent the 30th in merely keeping contact with our front; the night of the 30th–31st passed in collisions between patrols, and we were obliged to stand to arms. At last, about midnight, the enemy attacked the front of the 126th, suffering heavily, but without success. On the 31st March, attacks were renewed with the object of turning our left flank. Such a move had been anticipated, and this portion of the front had been reinforced by a German company, the divisional cavalry troops, one company 1st/191st and the detachment under major Said Bey. The enemy was therefore unable to develop his attack, and only succeeded in capturing a hill called Dashli Tepe. This point was, however, important to us, as from it the enemy could take the front of the 126th in reverse. The 1st/23rd carried out a counter-attack during the day, but were unsuccessful. An attack was planned for the night and the hill was kept under a continuous artillery fire. But after all this severe fighting, the troops had been considerably reduced in numbers. The battalions of the 126th had sunk to 50 men each. The

hospitals in Aman were filled to overflowing with wounded. Consequently the attack on Dashli Tepe was abandoned, and the army commander decided to contract the front, so as to gain a couple of days, and so give time for reinforcements to arrive. In accordance with his orders, the 126th withdrew during the night to a position 350 yards in rear. The position of the German battalions remained unchanged. The 4·7 field guns withdrew to a suitable position in the rear and the streets of Aman were barricaded. By midnight of 31st-1st April these dispositions had been completed. Divisional headquarters were situated in the new fort at 4 a.m., 1st April.

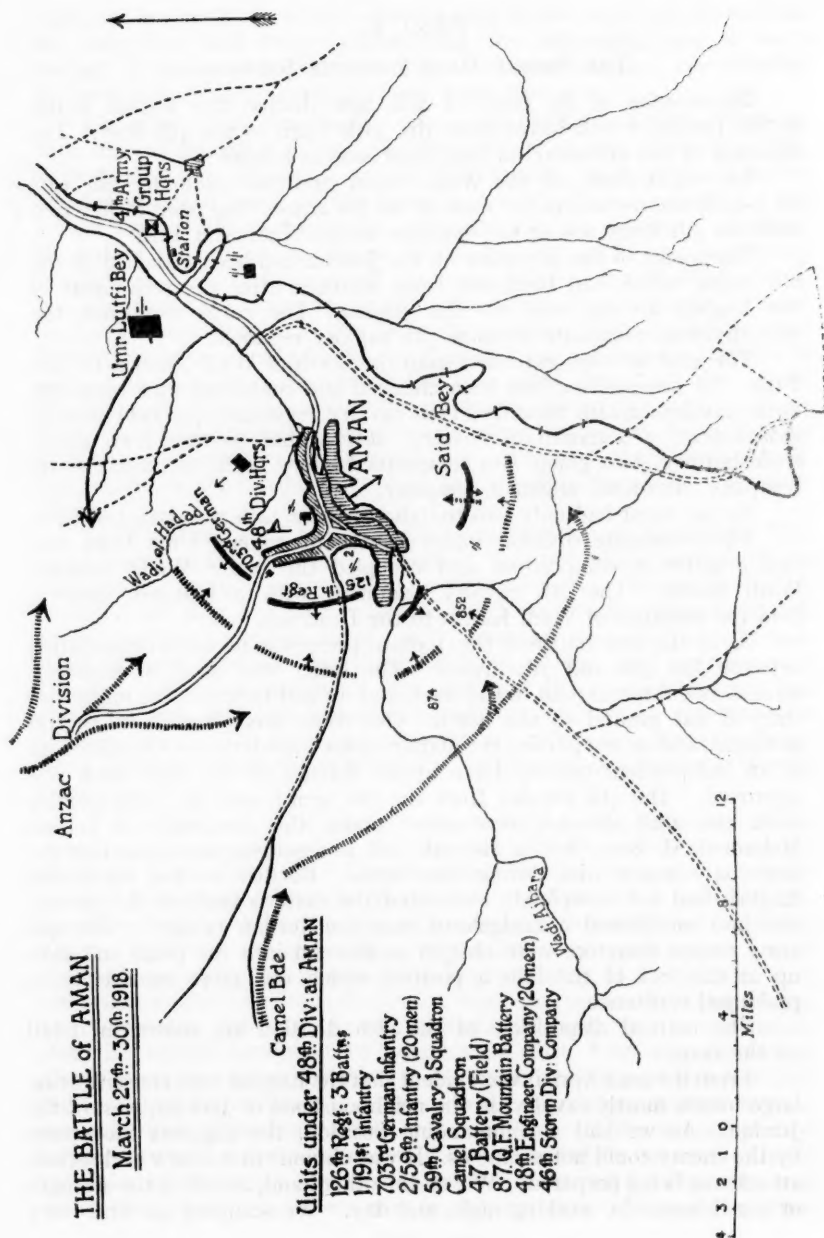
The enemy withdraws, 1st April.—During the night it was reported by major Said Bey that the enemy were withdrawing from Dashli Tepe. The latter had suffered heavy loss during the day from our artillery fire, and retired in consequence, leaving five machine guns behind. In front of the Germans and the 126th, all was quiet and patrols reported that the enemy was withdrawing. Our defence of Aman, which had lasted four days and nights without cessation, was thus brought to a brilliant conclusion. We had been indeed fortunate. I immediately telephoned the news to the army commander, who invited me to his headquarters to discuss what new steps should be taken. He immediately gave orders for the pursuit, though the troops had had no sleep since 22nd March and were worn out.

The pursuit.—At 1 p.m., 1st April, the force set out, coming up with a small enemy rearguard on the Salt-Aman road about noon. We advanced towards Soilah, though by the end of the day we had only reached a point 12 kilometres from Aman. On 2nd April, the army commander ordered the 48th division to move in the direction of Tel-el-Namrin by Salt and Soilah, and lieutenant colonel Umr Lutfi Bey, by Wadi Sir, on Kafrin and the Jordan.

Soilah was reached at 2 p.m. 2nd April, and Salt was reached at noon on the 3rd. In the meantime the 3rd cavalry division under colonel Isaad Bey had been sent by the 7th army to attack the enemy's left flank and rear at Salt, and the move had begun to make itself felt. Consequently, before the arrival of my division at Salt the 45th infantry attached to the cavalry division had entered the town. The enemy had quitted both Salt and Wadi Sir during the night. Without halting at Salt we immediately moved on Tel-el-Namrin, with the cavalry division on our right flank directed on the Jordan. We could not get into touch with lieutenant colonel Umr Lutfi Bey on our left.

On the 3rd April we reached Shaib bridge in the evening, and Tel-el-Namrin during the morning of the 4th. Except for a small force at Ariha, the enemy had withdrawn all his forces across the Jordan. A large quantity of stores fell into our hands at Salt and Soilah.

Thus the first battle of Jordan, which had lasted continuously from 22nd March, terminated with complete success to our arms.



PART V.

THE SECOND BATTLE OF THE JORDAN.

Organisation of the front.—I will now discuss the second battle of the Jordan, which lasted from the 30th April to the 4th May. The situation of the 4th army on that front was as follows:—

The right flank of the Wadi Sharia and the plain to the east for 3-4 kilometres was in the zone of the 7th army; the point of junction with the 4th army was at the entrance to the Wadi Abu Tara.

The troops of the 4th army on the Jordan had been attached to the 8th corps, which had been sent from Katrana after the retirement of the English to the west of the Jordan. The corps contained the 48th division, composite division, 7th cavalry regiment.

The 48th division extended from the north of Wadi Namrin to Abu Tara. Its composition had been changed and contained 23rd regiment, 191st cavalry, 2/24th infantry, 11th cavalry regiment, 4.7 field battery detachment, 7.8 mountain battery, 16th reshid battery (two guns), mule battery (two guns), 8.4 mountain battery, 47th divisional storm company, divisional engineer company.

As the 191st had only two battalions, the 2/24th was attached to it.

The composite division under lieutenant colonel Umr Lutfi Bey had a different composition and occupied the sector Wadi Namrin-Wadi Kafrin. The 7th cavalry regiment, with a four-gun battery, held the entrance of Wadi Kafrin to the Dead sea.

As at the first battle of the Jordan, there was no fixed delimitation between the 4th and 7th armies. The latter was weak in numbers. its sectors did not extend to the river, and we had to watch the important strip of flat ground to the north. Our front was about 8 kilometres in extent, and on my putting the matter up for consideration, the allotment of an independent cavalry force to the defence of the right flank was approved. The 9th cavalry from the 7th army and the 11th cavalry from the 48th division were united under the command of colonel Mohamed Ali Bey; but as the 9th had not joined, the latter had the 11th only under him during the battle. Further to the north the English had not completely evacuated the eastern bank of the Jordan and had established a bridgehead near the Jordan bridge. The 4th army troops therefore were obliged to descend into the plain and take up at the foot of the hills a position which was more suitable for a prolonged resistance.

The tactical dispositions of the 48th division are shown in detail on the map.

From the 20th April it was evident that the English were concentrating large forces, mostly cavalry, in the neighbourhood of Jericho, west of the Jordan. As we had a commanding position, the slightest movement by the enemy could not escape us. It was obvious that a new and serious attack was being prepared. We, on the other hand, added to the strength of our defences by working night and day. We occupied our line every

night, to be on the look out. The ground in the sector of the division was very hard and stony; entrenching was impossible, and we were obliged to make our defences of boulders and stones. Nevertheless we were able to complete half of our front line

The attack, 30th April.—At 7 a.m., 30th April, the English launched their new attack after a severe artillery bombardment directed at first against the 48th divisional front. The greater part of the London division attacked north of the Wadi-Namrin road, and a smaller force to the south. The attack was continued till the following morning. Several of the advanced troops, having brushed aside our supporting detachments, took advantage of the cover afforded by the Wadi Hajle and outflanked the troops in our front line, which they entered. A hand to hand encounter with the bayonet ensued. Both regiments sent forward their local reserves in the nick of time and were successful in ejecting the English from parts of the line. But dawn and the extent of our frontage prevented us from completely ousting the enemy. More than 20 hostile batteries of various calibre supported these attacks with a most destructive fire from the plain. As a result of the night attack, the regiments were reduced to half the strength, losing all their best officers.

Orders were issued to regiments in rear to occupy the second line, which commanded the first. Though it was not absolutely ready, its commanding position compensated for this deficiency. When the English occupied our first line, our batteries, which had registered beforehand, opened a heavy bombardment, and prevented their further advance. After daylight, another attack on the front of the 23rd regiment was repulsed. In the meantime it was seen that the enemy's cavalry had swept through the plain and were advancing north about 15 kilometres from our front. The force was estimated at not less than three divisions. With its flank turned, the 11th cavalry regiment on our right was thrown to the rear.

Fall of Salt.—A little later it was observed that a large part of the enemy's cavalry advanced in the direction of Salt, taking a mountain track *viâ* Wadi Abu Tara. From another direction by Ariha, a brigade of cavalry was threatening the rear of the right flank of the 48th division. I reinforced the 11th cavalry regiment in this locality with the 1-in. reshid battery and, with the concurrence of the 8th corps commander, I took the regiment under my orders. The inaccessibility of the ground, and the brilliant efforts of the 11th cavalry, composed of men from Azerbaijan and Erzeroum, held up the enveloping movement in the afternoon. But the enemy continued to advance on Salt from two directions. About 3 p.m. our communication to the latter was cut, and we knew that the town had been captured. Our rôle was now perilous indeed, because our only line of communication had been lost. If the enemy pushed further forward on the road, he would be able to fall on our rear. Under the order of the corps commander, colonel Mohamed Ali Bey, who was without any specific task, was sent in this direction. He was also given

two squadrons 7th cavalry regiment, a part of the German company which was with the corps, and a German dismounted gun detachment. But this movement could hardly be completed by the following day.

During the night of 30th April-1st May, the English made one more violent attack against the front of the 23rd, but by the mercy of providence were driven back. Our position and communication trenches were heavily shelled by day and night without cessation.

Action of 38th division, 1st-4th May.—1st May was spent in artillery action only, but a cavalry brigade advanced from Salt against the front of Mohamed Ali Bey and began to shell our lines of communication.

During the night of 1st-2nd May the enemy once more attacked the 23rd and the right flank of the 191st, but were repulsed. A little later, an attack was made on the right of the composite division from the south of the Namrin road, but was beaten off by a counter-attack executed by this division with the co-operation of the 48th division's guns.

Arrival of the 7th army.—2nd May was also passed in artillery action. A night attack on the 2nd and 3rd May was repulsed with heavy loss to the enemy; realising that he could not penetrate our front, he endeavoured to envelope our right flank on 3rd May. As no reserves now remained, we did all possible with artillery fire to impede the movement. But at this time our ammunition was giving out and our rations were finished. The men could be given only 100 grammes of flour each. But just as at the first battle of the Jordan, the 7th army had transferred a portion of its forces to the east bank of the river, and by threatening their line of retreat, once again obliged the enemy to evacuate Salt. There was only wireless communication with the corps at Aman, and the 4th army headquarters had gone to Aman. The commander, knowing the precarious situation of the corps, had sent up ammunition *via* Wadi Sir, employing the local population. From the other direction the army was doing its utmost to check the advance of the enemy from Salt to Aman, by collecting all available forces. On 3rd May, the news arrived that the 7th army was pushing on to our help in all haste, that colonel Isaad Bey with the 3rd cavalry division was advancing on Salt from El Damia, and that the 24th division in its attack on the Jordan had captured nine guns. As at Aman, our steadfastness once more bore fruit, and the same day the enemy's fire on our front showed signs of diminishing. During the morning of 4th May, some of the enemy were observed withdrawing to the Jordan. But other forces were seen crossing to the east bank, moving on El Damia.

Withdrawal of the enemy.—In the afternoon of 4th May, long columns were seen coming from Salt, moving rapidly and in the open, towards the Jordan on our right flank. There was now no doubt that the enemy had evacuated Salt for the second time. But the 8th corps had no troops and no strength with which to make a counter-attack. Moreover, the enemy had reinforced his forces on our front. The night of the 4th-5th May passed in heavy artillery fire. From time to time, rifle fire broke

out from the enemy's positions and died down towards midnight. At 3 a.m. on the 5th, patrols sent out from our position, reported that the enemy had retired from our front. Morning saw us once more in our first line, which had been captured before by the enemy. The battle, which had lasted five days and nights, caused heavy casualties to both sides. The resolute defence of the Salt road by the 8th corps had gained five days, in which the 7th army was able to intervene in the operations. Once again the superior forces of the enemy had been dashed vainly against the Jordan front. The resolution and stubbornness of the 8th corps in these operations were beyond all praise. The 48th division had borne the brunt of the fighting, and a large measure of success is due to it. The enemy's aim in these operations, which he conducted with the utmost determination, was to advance on Aman, cut the Hedjaz line, establish connection with the Sharif, and advance on Dar Ahira, thus cutting off the 7th and 8th armies. If one of these attacks had been successful, the movement on Syria would have begun at the beginning of 1918. But our successes prevented the English making use of this flank a third time. Just as in Aman, the 48th division received every help and encouragement from the 4th army commander, so in this battle of six days the 8th corps commander was equally encouraging. By his inspiring orders, Ali Buad Bey raised the *morale* of the men and officers and contributed greatly to the success of the operation.

I would have liked to give further details of these battles, which formed a very brilliant part of the British movement on Syria, because they contain many useful tactical and strategical lessons. But all my papers were lost in the last retreat, and I have no written memoranda left.



SOUTH AFRICA

(continued).

By CAPTAIN H. N. BIRCH-REYNARDSON.

THE passage of eleven years brings us to the next point at which we may stop to look back—and to look forward—in order to mark the divergence of the paths of British and Dutch in South Africa; for during the last days of 1895 occurred the Jameson raid. Whether it be taken as a first cause, or merely as a symptom, it was, at any rate, a factor of the greatest importance in its influence on the future.

First, to look backward. Between 1884 and the end of 1895 various changes had taken place in South Africa. In the east, Cape Colony had absorbed Pondoland, so bringing the whole of its north-east boundary into touch with Natal, and also British Bechuanaland, which had earlier been annexed (in 1885).¹ Zululand, after suffering territorially at the hands of Boer encroachment, had become a crown colony, separate from, but under the governor of Natal; later it was expanded up to the borders of Portuguese East Africa, thus bringing the whole of the east coast as far as the Portuguese frontier under British control. From Cape Colony, Basutoland had been removed to become a British crown colony. In the far north, Mashonaland and Matabeleland and North Zambesia, under the title of Rhodesia, were administered by the B.S.A. Co., as was also the Bechuanaland protectorate.

In the Dutch Republics, with the exception of the South African Republic's encroachment on Zululand, no territorial changes had taken place. But there had been important political and social development. In the Orange Free State, president Brand's death in 1888 marked a definite change of policy. His wise and far-seeing statesmanship had, in spite of his difficulty of 1876, secured and promoted the best relations between the Free State and the Cape Colony. Friendly relations were still to continue for some years, but Reitz's succession to the presidency, and the treaty of Potchefstroom in 1889—a defensive alliance with the S.A.R.—were the first symptoms of a new influence.

But it is in the South African republic that, during this period as in former years, political interest centres: it was there that events were moving, quite steadily, quite inexorably and, be it added, quite logically, towards the *impasse*.

By the convention of London in 1889 the Transvaal Boers, whose country had been taken over on the score of their proven incapacity

¹ N.B.—In this connection it should be noticed that German South-West Africa came into being in 1884.

to rule themselves, were re-established in their independence. In the interval between the annexation and restoration they had shown no sudden genius for government: but they had adequate reason to believe that they had signally defeated their enemies on the field of battle. The cause of Great Britain's change of policy, then, was plain. It was a bargain in which the Boers had got very much the best of it. It is true there were certain clauses—British control of their foreign policy, prescribed limits to their frontiers—which did not accord with complete independence: but it was all a question of bargain—"a scrap of paper"—the game of grab and bluff, at which the Transvaal Boer—the trekker, the hunter, the barterer—had been trained from childhood. And into the hands of such a one fell the reins of government. In 1837 Paul Kruger, as a boy of twelve, had taken part in the great trek, one of that company whose object was "to get away and to stay away" from British government. His life had been the life of the frontiersman; fighting and bartering, hunting and journeying in the open veldt—and hating, always hating, the race that had driven his people from the south. In the late war he had led his people with success and now he was President of the restored republic. He was what life had made him: brave, cunning, independent, suspicious, obstinate; of the arts of hunting and of fighting a past master; of the world at large, of the ways of civilisation and of the art of government, utterly and hopelessly ignorant.

It was to such men as this that the administration of the state was entrusted. But the task, in which they had failed ten years before, had now become a thousandfold more difficult. Then they had been unable to govern themselves: now they were to govern a white population of mixed nationalities and manners and antecedents, outnumbering their own people.

But before we look more closely into the internal state of the republic, its surroundings must also receive attention. The territorial changes which had taken place since 1884 have been mentioned previously and a glance at the map of South Africa will show that by 1895 the republic had become encircled by British territory; north, south, east and west, it was hemmed in. Great Britain, having learnt by experience the troubles and disorders which were the concomitant of Boer expansion into new territories, had by the convention of 1884, and again in 1887, insisted on strictly defined boundaries, beyond which the republic was not to encroach. Unfortunately, on this second occasion (1887) a little bargaining was done in the old, hopeless method: the Boers were granted a slight extension of territory, and in return agreed to abide by the terms of the convention of London, which had expressly refused this, and to which they had subscribed in 1884. But when in 1895 the British government, as the only means of checking further "nibbling" in Swaziland, annexed the trans-Pongola territories, the republic realised suddenly that the process of "einkreisung" was complete. Cornered—encircled—hemmed in: the effect on the Boer temperament, on the

trekker and hunter and wanderer of the veldt, was, as may be imagined, irritating. It is unnecessary to follow the innumerable disputes and difficulties arising—they were merely contributory to the far more serious internal question to which we must turn again. It was the question of the Uitlanders—the population of aliens attracted into the republic by the quest of gold.

In 1894 the white population of the South African republic was estimated at about 149,000; of these, some 71,000 were native to the Dutch republics; 78,000 were aliens, of whom 62,000 were British subjects. The Boers regarded this alien population as useful in that it produced wealth—wealth of which the government of the republic was in a position to secure a considerable share. Beyond this they did not choose to regard it. Foreigners lived in the republic on sufferance, at their own risk and under whatever disadvantages and penalties the republic chose to inflict; the land was a Boer republic, for the benefit of Boers and Boers only; no one else had a right to citizenship. It was precisely the attitude of mind which might be expected from the unsophisticated veldt-ranger, the shrewd driver of hard bargains, the ignorant, the narrow-minded sufferer from life's hard knocks; he had got onto a good thing at last; he meant to keep it and to keep others out of it.

And what were the disadvantages and penalties? Taxes and laws. In 1887 the Boer government was trembling on the verge of bankruptcy, the country and its people miserably poor; but within seven years it had completely changed, by the capital, the industry and the energy of the new white population. They outnumbered the Boers themselves, they owned half the land, and a far greater proportion of the property of the country; they contributed over 75 per cent. of the state's revenue, largely by direct taxation. But in the government of the country which they had made, which they had raised from the dead, they could take no part and say no word. While, in 1876, one year's residence in the republic had qualified for citizenship, in 1882 this was increased to five and by a law of 1890, followed by other laws, this was further increased to 14 years, and various conditions had been attached which made it impossible, as a matter of right, ever to win full citizenship.

To read of it is madness; but there was method in the madness. In the first place, gold, as ever, had corrupted, and the Boer government, in its individuals, was not immune. But, a more important consideration even than gold in the eyes of Kruger and his anti-British advisers, the large majority of the Uitlanders were British subjects, and concessions were, therefore, all the more objectionable; they might involve administrative changes on British lines—impossible: also unnecessary. When the Boers were poor and of no account, the British had never bargained with them; now they had gold, funds for opposition in peace—even in war, perhaps. The republic could afford to harden its heart. For years the Uitlanders did their utmost to obtain redress by constitutional means; time and again it was refused. Their petitions were treated

with contempt, their penalties were rather increased than remitted; the government, for which they paid, and in which they were allowed no representation, became more and more corrupt. Their cause, as such, was absolutely sound; but at last, provoked to counsels of desperation, they adopted a course of action which went far to prejudice this cause.

Jameson's raid upon Johannesburg was the outcome of a conspiracy entered into by the chiefs of the national union with the leaders of the chartered company under the guiding hand of Cecil Rhodes, to overturn the existing republican government. That the raid was a totally unjustifiable act, is not open to question, after every concession has been made to the provocation; that it was the enormity which, at the time, it was represented to be, a cold scrutiny of the facts will refute. But besides being unjustifiable as an action, it was disastrous as a policy. Throughout the world it was immediately represented that the object of the conspiracy was the seizure of the Transvaal, for, and by, Great Britain. So far from this being the case, the raid had failed largely owing to postponements due to assurances being required by the conspirators that the independence of the republic would not be endangered, nor British rule substituted. But it was a difficult charge to refute, when the arch-conspirators, the organiser, the leader and the rank and file of the raiding force were all British subjects. It was particularly difficult to persuade the Dutch that it was merely a lawless episode in which were involved certain men who chanced to be British subjects. Surely it was a wrong against their nation committed by England, with the approval, certainly with the sympathy, of many in England? They questioned, and there were found many in Europe to answer them. It was of no avail that England denied all responsibility, tried, and condemned, the culprits. Henceforth the people of Johannesburg were British interlopers, through whom England for her own ends had attempted to work a revolution: Kruger stood against them and against England as the champion of Dutch nationality, and the Dutch were with him. And since the raid had almost succeeded, they must be ready for the future: they were rich enough to prepare for war, and justification¹ for armaments was now at hand.

A momentary panic had produced signs of improvement in the Uitlanders' lot—vague promises and comforting words—but these signs were as short-lived as the panic; the Uitlanders naturally lost rather than gained. The question was of urgent and pressing importance; its solution more difficult than ever.

It was in February, 1896, that Mr. Chamberlain, in a despatch addressed to the Boer government, set out at length the grievances of the Uitlanders and suggested a discussion of the issues involved: during the next three years the discussions continued, and in the end came war. It

¹ This was, later, the Boer argument: but there is considerable evidence that preparations for war preceded the Jameson raid. *Vide* Fitzpatrick's "The Transvaal from Within."

will be enough to touch on the main points of the long argument, without attempting to follow every detail of the weary negotiations, the full story of which, together with every conceivable criticism thereon, has filled volumes.

The outstanding feature of the whole business appears in the change of attitude of one of the disputants, while the other remained so strictly and exactly true to type. It was no new thing for a British government to be engaged in "negotiations" with the Boers: there was an established precedent for both matter and manner. Compromise: patch-up: indecision—that was the British record. Bargain: squeeze: bluff—so the Dutch had been taught. And suddenly, for the first time, came a British government almost hysterically determined to look the matter squarely in the face, not to slide off the main issue, not to be put off by a bargain: determined on an unequivocal answer to a definite question: resolute, meaning precisely what it said, and—as though it had learnt something from history—demanding precisely what was meant in return: and all this to the bitter end.

Often had a British government so appeared before: no less uncertain had certain pronouncements—and certain promises too—sounded in the past: no less firm had seemed the attitude. But always, always, a little bargaining, a little bluff, a little force even, had settled the business: it had ended in a deal—always before.

How should the Boers realise that a change had come about? And so the bargaining began: an exercise in cross-purposes. The first "bargain," a demand for the abolition of the convention of London, together with sundry other conditions and concessions, as a basis for discussion, resulted in a temporary deadlock. The year 1897 saw further legislation aimed at the Uitlanders, and a grotesque claim for moral and material damages which the burghers were said to have suffered owing to the Jameson raid. Nearly £678,000 was claimed on the score of the latter and a million for the moral damage.

More and more was Kruger becoming the figure-head of Dutch nationality, the protector of his race, and though with Lord Milner's arrival as high commissioner in 1898, South African affairs outside the republic seemed to be going better, there is no doubt that already the calling in question of the London convention had attracted many waverers. At the end of the year came 'the Edgar incident,' trivial, yet momentous as the Sarajevo murder. It cast a sudden ray of light into the confused darkness of dispute and revealed the truth: that it was a matter not of politics but of racial antagonism. Petitions and counter-petitions followed; the position was summed up in a despatch from the high commissioner; and on the 31st May, 1899, commenced the historic Bloemfontein conference. Sir A. Milner and Kruger faced one another: the one demanding the unequivocal answer, the irreducible minimum; the other intent upon a deal. Kruger, it is true, came down in his price,—that was good bargaining surely; but the English took no interest, never lifted an eye. That was hopeless: this Englishman was not true to type. The

conference ended on 5th of June with nothing effected; not even mutual understanding. Again and again it was the London convention with its claim for British suzerainty that was the stumbling block, and the British refusal to agree to foreign arbitration. But fervently the British held to one issue and one issue only: that decided, the other questions should be discussed.

On 20th July, the republic advanced one more step with a new and more favourable franchise bill; again the Englishmen did not raise their eyes from the fixed, irreducible minimum—in vulgar parlance “nothing doing.” Then came two offers close upon each other: the first a big step, so big as almost to meet the opposition; then, two days later, as though the price had come down with too big a run, a little hedging, a condition: that British suzerainty over the republic should be rescinded. Which offer was ‘firm’? Tentative acceptance of the first offer, direct refusal to contemplate the condition, was the reply. The result was the immediate withdrawal of any offer by the Boer government. One more attempt was made from the British side on the 8th September: an unsatisfactory reply was returned on the 15th and with the British Government’s wire of 22nd September, to the effect that the whole situation must now be gone into afresh, the negotiations ended.

Long before this the matter had become a ‘national question.’ In August, protests had been raised by the Orange Free State against the movements of British troops near their border; and by the end of September the Free State volksraad had registered their determination not to remain neutral in the event of war. Although Cape Colony was well-nigh defenceless, although Natal was so unprepared that within a week of the declaration of war the South African republican forces easily effected an invasion, president Steyn quoted the ‘enormous and ever increasing’ military preparations of the British as a just cause for the calling out of the Burghers of the Free State. That was early in October. On 4th October there was one last offer from the British side. Mutual assurances were to be given by the British government and the two republics that, pending negotiations, neither party should commit any hostile act against the other. It was not accepted. On 9th October came the ultimatum from the South African republic and by 14th October the forces of the Orange Free State had moved across the border.

It is not proposed here to enter into the vexed question as to whether the pretext or occasion of the second South African war was justifiable. That it was the direct result of British ‘oppression’ of a small and gallant nation ‘struggling to be free’ is a once-popular contention impossible to maintain: the South African republic, as such, had never been oppressed by the British. It had oppressed others. That it was a capitalistic war, waged at the command of mine-owners and financiers, seems hard to prove: from the rank and file of the national union—the Uitlanders—composed, by a very large majority of working men of the Rand, the owners had been loth to associate themselves: by the actual operations of war they stood to lose

immensely—and they did lose. To argue that the Uitlanders themselves were a rabble of ill-behaved and disorderly offscourings and that “no decently behaved foreigner ever had any trouble with the Boer government,” even if true, is entirely beside the point. The injustices under which foreigners lived in the South African republic cannot be denied: nor can it be denied that over the border in the Cape Colony the Dutch were living in complete liberty under British rule, and were enjoying equal benefits with British subjects. But, on the other hand, if innocent of oppression, the British government were guilty not once, but throughout the history of its relations with the Dutch in South Africa, of a blundering, tactless impolicy, of weakness, of vacillation, to which the event, though not the occasion, may most definitely be traced. The great trek, the Sand river convention—the annexation of '77—the convention of Pretoria—the convention of London—the Jameson raid: they are chapters which could lead to but one conclusion: a state of affairs which ultimately made war inevitable. And the verdict of history may yet be that the second South African war was not a war of oppression, or of capitalism, or of imperialism; but simply a war of irritation, unintentional but persistent. “The dripping of water weareth away a stone.”

For over two and a half years the war dragged on, and the end, when at last it came, found the Boer forces broken, defeated and dispersed. They had fought to the last gasp, beyond, indeed, the limit of endurance, and beyond the fulfilment of any useful purpose, save the satisfaction of the ‘last ditchers’ of the Orange Free State. A year before, many of the Transvaal leaders, ready for peace on British terms, had been persuaded by their more irreconcilable allies to fight on in a cause already lost: and even at the end it needed much persuasion from Botha and Delarey before De Wet would agree that the game was up. Fortunately, their wisdom triumphed. Nothing had been gained and much had been lost by the fruitless prolongation of hostilities, but in justice it must be said that this was as much due to one side as to the other. Many in England disagreed with the war, or in its conduct found ground for criticism. Speeches of politicians ‘in opposition’ and letters addressed to the press from censorious armchairs only served to strengthen the hand of the irreconcilables among the enemy: and, as must ever be the case in war, the evils of party government were very much in evidence.

The peace of Vereeniging was signed at Pretoria on 31st May, 1902. The Boer forces were broken and for a year past had been hunted from one corner of South Africa to the other: the two republics no longer existed: of their presidents, Paul Kruger had fled the country, and Steyn was a broken and dying man: their territories were ravaged and laid waste by war. Everywhere the British were in the position of conquerors, victorious and dominant.

It seemed, indeed, to return to our analogy, that, though in the future there might be but one road in South Africa, it would not be the

coincidence of those two paths so long divergent, but rather the obliteration of one by the other: a breaking of the earth, a crushing of the rock, the overlaying of heavy metal, to drive a granite highway of empire across veldt and valley. That this was not so was due, in the main, to two great statesmen, to the two builders of the road—lord Milner and Louis Botha.

On opposing sides and in somewhat different spheres, throughout the war each had shown a singleness of aim, a fixity of purpose and a clearness of vision conspicuous during a period in which reputations were made and marred. The war was ended and peace established: the singleness of aim remained.

The union of South Africa was an ideal, some said an idle dream, in 1860: now after forty years of misunderstanding and muddle and mutual antagonism culminating in two and a half years of war, war to the bitter end, the ideal was to become a fact, the dream was to come true. Whether a war was necessary before union could become practicable is a question which must be asked in vain: the war produced conditions which in less than ten years resulted in rapid evolution of the union of South Africa. Now, step by step, can be traced the approach of the two paths; they lead, on the whole, over level ground, though there are stony places here and there; the milestones are passed in quick succession.

June, 1902, saw crown colony government established in the Transvaal and the Orange River Colony, and in both gradually developed and broadened, with unofficial members, English and Dutch, added to the legislative councils. In 1903 came the inter-colonial council convened in order to advise the high commissioner on the financial administration of the lately unified railways and constabulary of the Transvaal and the Orange River Colony: it was a step, limited, but definitely in the direction of union. As definite, and less limited as including all four colonies, was the customs union conference at Bloemfontein the same year, at which "the coming federation of the South African colonies" was discussed as practical politics. There followed, during the next few years a period of difficulty—a tract of stony ground, when the labour question was much in evidence, not for the first time, nor the last. The 'Chinese Slavery' cry of 1905 was reminiscent of the days of lord Glenelg. It originated in ignorance, disinterested but abysmal; encouraged from ulterior motives, it ended in dishonesty, and the winning of an election in England. It was neither helpful for South Africa nor creditable to England.

In 1906 came a new government, and a new South African policy. It was decided to give representative government to the two new colonies immediately, instead of withholding for a further period the control of executive officers, as had been proposed in the Lyttelton constitution of the previous year. A strong argument in favour of the immediate grant of full responsibility was found in the disasters of delay as illustrated by the history of 1880, and accordingly, the Transvaal received

its new constitution: in June, 1907, a similar constitution was given to the Orange River colony. At the moment, it was considered by many to be a rash experiment: when in 1908 it was found that of four self-governing colonies in South Africa, three, Cape Colony, the Transvaal, and the Orange River Colony—were politically completely in the hands of the Dutch, the prophets of disaster wagged their heads. Yet they were wrong; they had regarded the stony surface of the paths, rather than their direction.

Lord Selborne's memorandum analysing the possibility of union in South Africa, a clear examination and statement of political and racial conditions, was published early in 1907 and in the same year, General Botha, speaking at the Imperial conference, proposed a common court of appeal for the four colonies, making direct reference to the subsequent establishment of federation. The argument and reasoning of lord Selborne's memorandum found many prepared and willing to understand, and in October, 1908, the national convention met at Durban; early in February, 1909, the delegates from the four colonies had agreed on and published a draft constitution for a united South Africa, which was laid before the Parliaments and, after some further amendments, accepted by all in June. On the 31st May, 1910, the anniversary of the peace of Vereeniging, the union of South Africa became an accomplished fact, and on the 4th of November, the duke of Connaught opened the first South African parliament. For the future, the two paths were to form one highway.

Within four years, the new order was to be proved by war, and the passage of armed men was to test the capacity and firmness of the new road; how well it stood the test is recent history. So sound was judged this latest highway of empire, so competent to bear the strain, that it has been decreed and agreed that no longer is the presence of the original road-makers and road-menders required—the British army in South Africa has served its purpose.

In December, 1921, the South African military command was formally handed over to the government of the union, which henceforward assumes the responsibilities and duties previously carried out by British troops—broadly speaking, the defence by land and the maintenance of internal order in South Africa. To put it bluntly, for the future, the ties of sentiment and interest alone bind South Africa to the empire.

General Smuts, at the formal ceremony in Pretoria, alluded to the gravity of the charge now assumed by the union government and to the justifiable pride which would be felt by all South Africans in bearing the supreme responsibility. These expressions were not mere figures of speech.

The dangers and problems of government in South Africa as exemplified by the history of the last fifty years, have, in some aspects, been simplified, but not removed. The responsibilities falling to the union will increase enormously as its position in Africa, in the empire and in the world, is extended.

Already the first storm has been weathered. But those evil genii—the native question and (white) racial antagonism proved that they were far from dead, and had enlisted new and lively allies. The 'rebellion' on the rand was brought to naught, but there was not much to spare. Before these two dark spirits are exorcised, there will be difficult and dangerous work.

It may be argued that these problems are the private affairs of the union, which it is competent to solve and the responsibility for which it has now freely undertaken: that, therefore, it is nobody else's business. There must be no doubt as to its capacity to undertake these tasks: there can be no question of authority. But, if the history of South Africa proves nothing else, it proves that this theory of seclusion and isolation was utterly impossible in practice in the past—and how in the future can it succeed?

Civilisation and commerce in Africa will extend and the impulse for their extension will come from South Africa, where are the ports, communications, wealth, brains, energy necessary for such immense developments. The influence which will spread through Africa will be the influence, and the policy, of the union. Commercially, the importance of undeveloped Africa with its immense resources in raw materials need not be laboured: strategically, South Africa possesses such advantages as to make it almost indispensable to the existence of the British empire. Briefly, the argument may be presented thus. In view of the post-war situation in Egypt, the canal route from Canada and England to India and Australasia cannot be considered secure beyond question. The only practicable alternative¹ is the Cape route. Based on Cape Town, a fleet is strategically so strongly situated that hostile ships bound *via* the Atlantic and India ocean either for India or for Australasia could with certainty be intercepted and brought to action. The salient of South Africa then, culminating in the pivotal Point of the cape of Good Hope, commands the communications upon the cape route between the two halves of the British empire; further, excluding port Said, it is the most central of the six² representative ports of embarkation in the empire, and it is the port of a recruiting base (S. Africa), which port Said in Egypt is not.

The imperial navy, it is true, is still responsible for the naval defence of South Africa, but unless the integrity of South Africa were assured, such a task, instead of a privilege and safeguard to the empire, would be but an additional danger and incubus.

In face of such considerations, of civilisation, of commerce, of strategy—can we answer that the direction and the extent of the preponderating influence in Africa is a matter of private politics, of no consideration to the empire and the world without?

Fortunately, general Smuts is the last to desire such a reply: he

¹ The Panama canal cannot be considered a secure alternative for purpose of war.

² Southampton, Port Said, Bombay, Capetown, Melbourne, Halifax.

spoke of regarding the civilisation of Africa as a trust; of the development and maintenance of order as a duty delegated to the union; of the ideals of civilisation, now delegated to their sole charge. "The British army will no more be here to share the danger with us . . . the moral responsibility of the future therefore rests with us. . . ."

There remain, then, the ties of common interest, sentiment, sympathy—weak as gossamer, or strong as steel. The near future will decide which. But so much has Great Britain given in trust, so far have we gone upon the road from which no return is possible, that there can be no looking back now, no thought of failure. Success here is a matter of will and determination, even as it is essential and indispensable to the empire's existence. What should be the common contribution towards strengthening these ties of common interest it is easy to proclaim: both parties may learn from an unhappy past of misunderstanding and enmity and failure.

But amid that turmoil of disaster and ruin sounded the words of many prophets, two of which may be quoted.

"A nation does not stand or fall with its Government or its charter, but with its people. No state can exist without faithful subjects."¹

"Socially, economically, ethnologically, they (the states of South Africa) are all one country; the two principal white races are everywhere inextricably mixed up: it is absurd for either to dream of permanently subjugating the other. The only condition in which they can live in harmony and under which the country can progress, is equality all round."²

An ideal theory and a practical ideal; the great corner stones for those who would build the Africa of the future.

¹ President Burgess's address to the Volksraad, March, 1877.

² Sir A. Milner's Despatch of May, 1899.



THE CAMPAIGN IN MESOPOTAMIA— THE FIRST PHASE.

By "DALIL."

SINCE the war there has been a notable but a perfectly reasonable reversal in the importance of the various campaigns in which our armies took part in the period 1914-18: a reversal of their importance, that is to say, in the eyes of military students. During the war it was natural that attention should be to a large extent concentrated on France and Belgium: it was there that our greatest numbers were engaged and there that the decision was sought and finally won.

But since the war values—in the sight of military searchers after truth—have adjusted themselves. There has been a separation of the emotional, the sensational or the sentimental interest from interests purely military and political. We are less sure now than we were in 1920 that military wisdom and political interest were centered only in the continent of Europe and that from the lessons of the western front alone we can learn all that is necessary of modern—and future—warfare. Perspective has readjusted itself, reflection has taken the place of feverish impression; opinions have been sorted out and gradually the old truth has emerged again—that Great Britain and the British empire are faced with problems of policy, strategy and tactics dissimilar from those of any continental power; and that which is sauce for the goose is not necessarily sauce for the gander. It was the realisation of this truth that brought the "side-shows" into their own.

It is scarcely an exaggeration to say that the campaign in the west, in almost every feature—its extent, its duration, the numbers engaged, the methods employed, the *terrain* fought over—has come to be regarded as a form of war exceptional to British policy and to British arms; whereas it is in the "side-shows" that we see exemplified situations and conditions which are typical of the past and probable in the future. And not only are they probable but possible: that is to say, with our military forces as they at present exist, it is only war on such a scale that we can contemplate; whereas the exceptional, "The Great War," is clean out of bounds. In more senses than one we cannot afford a policy involving anything of the kind.

In short, our army is to be fitted and trained for a small war and for mobile warfare against an enemy equally well armed as ourselves.

So we turn to the side-show. Which shall it be? Gallipoli, Salonica, Palestine, Egypt, east Africa, west Africa, German south-west, Mesopotamia, north Russia? The answer is—all. All are different and so all are typical—typical of the varying conditions, the various enemies,

the diverse *terrains*, the extremes of climate which a small regular army serving in every corner of the earth may be called upon to deal with.

But although all of the many minor campaigns in which British arms were engaged have their lessons to teach—lessons which must and will prove valuable in the future—it may be advisable to take into consideration immediate military and political, racial and religious situations within our empire, or upon its borders, and with these as a basis of selection to choose an example which approximates most nearly to probable military and political problems of the near future,

In the writer's opinion, it is justifiable on this basis to select the Mesopotamian campaign as one of the minor wars the history of which illustrates more fully than any other, and by more numerous examples, problems of policy and conditions of warfare which may again face us in the next few years.

Until lately the literature—with two exceptions—available to the general reader for the study of this campaign was extremely limited. To the best of the writer's belief, it consisted of the report¹ of the Mesopotamia committee and of some half dozen books of reminiscences written for the most part from the regimental, or purely personal, point of view, and historically disjointed. One of the exceptions referred to is, of course, general Bird's recent book;² but this, worthy as it is to rank in the first class of military history, deals only with a short phase of the campaign and makes only the briefest mention of its initial stages. The other, general Townshend's account,³ mainly personal though it is, contains some most valuable material; but here again we find very little as to the beginning of things.

This unsatisfactory state of affairs has at length been corrected by the appearance of the first volume⁴ of the official history of the campaign, which carries the story up to the taking of Kut in September, 1915; and for the first time we can read a connected account both of the policy which gave birth to the expedition and of the initial moves in a game which later we came so perilously near to losing. The events covered by the latter portion of this volume, although they bring to light much that is new, have already been dealt with in some detail elsewhere: but the history of the campaign up to the taking of Basra, together with the story of the formulation of the policy which led to the Mesopotamian expedition, have now been dealt with adequately for the first time. It is to a consideration of this policy and to the history of the initial operations that the writer proposes to confine the following pages.

¹ The report was published while the war was still in progress.

² "A Chapter of Misfortunes," by Major-General W. G. Bird, C.B., C.M.G., D.S.O.

³ "My Campaign in Mesopotamia," by Major-General Sir Charles V. F. Townshend, K.C.B., D.S.O.

⁴ "Official History of the War. Mesopotamia Campaign: 1914-1918." Compiled at the request of the Government of India under the direction of the Historical Section of the Committee of Imperial Defence by Brig.-Gen. F. J. Moberly, C.B., C.S.I., D.S.O.

Certainly, it was not an easy campaign to understand, this first phase. The initial successes, when they were at length noticed, were overrated—as an off-set to less favourable conditions elsewhere; the end—the failure and the breakdown—was a public scandal and in an atmosphere of recrimination and mutual accusation was so treated. There was exaggeration at both ends, to obscure the issue.

What indeed was the issue originally of this campaign? Why did we embark on it? To carry out what policy did we go to Mesopotamia?

By the end of September, 1914, the situation was critical enough. The western front had already shown that, before it was finished with, men and more men would be needed; there was east Africa, too, and west Africa, and Aden and Egypt—for Turkey was on the verge of war. India was already committed to three expeditionary forces—one to France and Egypt, and two to east Africa; while the north-west Frontier appeared likely to prove troublesome. It seemed that our hands were full. Yet, if Turkey were to join the Central Powers, little as we could afford offensive action in a new theatre, in view of the racial and religious factors involved by Turkish hostility it is doubtful whether we could have afforded to sit still on the defensive. At any rate, an offensive rôle was decided on—and the head of the Persian gulf was chosen as the scene of this new war.

The generally accepted explanation of this choice has been the necessity for securing against enemy action the Anglo-Persian Oil Company's refinery at Abadan, whence a considerable proportion of the navy's oil supplies were at the time obtained. It was beyond dispute that this supply would be endangered by a Turkish entry into the war; from the end of August this danger had been an anxiety to the Admiralty and suggestions had been made in favour of despatching troops from India for its defence. But, as answer to the argument, that the safeguarding of the oil alone was strategically or politically an object of such importance as to justify an expedition to yet another theatre of war, may be quoted a minute by the first lord of the admiralty, dated 1st September, 1914:—"There is little likelihood," he wrote, "of any troops being available for this purpose. *Indian forces must be used at the decisive point.* We shall have to buy our oil from elsewhere. *The Turk can best be dealt with at the centre.*" Can there be any doubt that this was the right answer to the argument?

But there were other reasons besides oil. Since the middle of August it had been apparent that Germany, using Turkey as her tool, was straining every nerve to influence Persia and Afghanistan: the propaganda, money, and agents of Germany had already appeared throughout the middle east with the avowed object of raising a "Jahad" which should combine all Islam against the British.

The government of India was perfectly aware of these plans but seems to have arrived at conclusions rather different from those of Whitehall, although both agreed in one important respect: *viz.*, that

the intended "Jahad," if it materialised, would constitute a very real menace to India. It seems, however, that it was the home government which was mainly responsible for the belief that offensive action at the head of the Persian gulf would influence the situation and which attached supreme importance to winning over the Arabs as a decisive factor. Simla appears to have been less sure how the cat would jump; and, though favouring an increase of naval force at the head of the gulf, was somewhat averse from a scheme which seemed to contemplate relying for the military defence of the north-west frontier on the political effect of yet another dispersion of the already much reduced Indian army. Neither does India appear to have been impressed by the prospects of any military value accruing from Arab co-operation (pet ideas of the India Office and the Foreign Office which only bitter experience could dissipate).

It seems clear that this political aim, with the effects it was hoped to secure, was the main reason for initiating operations in Mesopotamia; yet even so, there appears a certain confusion of thought. The report of the Mesopotamia committee does little to clear the matter up, though it gives an interesting extract from a memorandum by the then military secretary of the India Office, dated 26th September, 1914, (quoted at length in the Official History) in which he enumerates four reasons for or objects of the expedition:

- "1. It would checkmate Turkish intrigues and demonstrate our ability to strike.
- "2. It would encourage the Arabs to rally to us, and confirm the Sheiks of Mohammerah and Koweit in their allegiance.
- "3. It would safeguard Egypt, and without Arab support, a Turkish invasion is impossible.
- "4. It would effectually protect the oil installation at Abadan."

For these objects "troops could be landed on Persian soil at Mohammerah or Abadan island, *ostensibly to protect the oil installation, but in reality to notify the Turks that we meant business, and to the Arabs that we were ready to support them With the Arabs on our side a 'Jahad' is impossible, and our Indian frontier is safe from attack.*"

It is impossible to say exactly how much weight this memorandum carried, but considering its source it seems probable that its influence must have been considerable, and it is therefore worthy of attention. It is a surprising document. Of the four objects enumerated, number one meant precisely nothing; number two was, at the time, trivial; number three was very doubtful and, as events proved, an exaggeration; number four was true, but had previously in the memorandum been relegated to an ostensible object.

Persia was neutral territory, the neutrality of which it was very much to our interest to preserve: so it was proposed to invade Persian territory. The main object was to maintain friendly relations with Islam with an eye to the security of the Indian frontier, to gain the

confidence of the Mohammedan population: so it was proposed to compromise the neutrality of a Mohammedan power before Turkey had declared war.

Beyond a somewhat parenthetical mention of Egypt, the whole situation is regarded purely from this Indian point of view, and yet there was a curious disregard for the military situation in India. The expeditionary forces for which India was already responsible have already been noticed; it was known that their maintenance must prove a heavy drain in *personnel* and equally it was known that the Indian army reserve was insufficient and inadequate, while the reserve of officers numbered precisely 40. There was no pre-war plan for operations in Mesopotamia. And yet here was a serious proposal to launch a further Indian expeditionary force on a venture, the alleged objects of which, viewing on one hand the resources available, and on the other the commitments to be faced, must be considered if not fantastic at least lacking in all sense of proportion.

A month before Mr. Winston Churchill had written: "Indian forces must be used at the decisive point. . . . The Turk can be dealt with better at the centre. . . . Europe and Egypt have greater claims than we have (*i.e.*, the Admiralty) on the Indian army." Nothing had changed the truth of that appreciation: indeed nothing can possibly change the great principles of strategy on which it was based.

Failing any further evidence, it must, then, be accepted that the primary object of the campaign was to secure the safety of India by checkmating the "jahad" engineered by Germany. Beyond this there is no evidence—but it is possible to advance a theory which may account for much.

The initial chapters of the "Official History" deal briefly but very clearly with British, German and Turkish policy in the middle east. "Under the magnetic touch of Gladstone's withering oratory the cause of Turkey in England crumbled to the dust. England broke with the official head of sixty millions of her Musulman subjects and regarded not at all the day of reckoning. It was magnificent but it was not diplomatic war." From that moment Germany began to spin her web: and from the maze of diplomacy and intrigue one thread is clearly distinguishable—the Baghdad railway. Without this railway, it is true, Germany could dominate the near east and close the Black sea—objects sufficiently valuable to be well worth while. But with the Baghdad railway built, a far wider vista was opened: nothing less than the establishment of German military and naval power on the Persian gulf, an immediate and ever-present threat to British power in the east.

In 1914 the long duel was nearing its end: gradually Germany had secured almost all she wanted, and, heavily handicapped by political and military considerations, Great Britain had gradually been forced to surrender almost all that she realised to be so vital to her security in the east.

Now it is possible that when war came, both Germany and Great Britain were influenced by not altogether dissimilar considerations: on the one side consciously, on the other perhaps unconsciously. Although it was obviously to Germany's *immediate* and temporary advantage to "make trouble" in Mesopotamia and its borderlands, may she not also have been encouraged in an enterprise which held out the prospect of immense ultimate advantage? In other words, here was a chance to gain, with Turkish cannon fodder, the great prize which German diplomacy had almost, *but not quite*, won—the paramount position on the Tigris and the Persian gulf.

And, conversely, is it possible that an instinct, rather than a policy, was responsible for the British venture? That behind the penny-wise calculations of the moment lay some realisation—begotten of dreams and visions—that here was the great chance, the last chance, of retrieving the fatal errors of the past; such an opportunity as never would again occur of securing Britain in the east? . . . No doubt a fantastic theory; but one which, if true, might *almost* have justified the Mesopotamian venture.

But to return from fancy to fact. By 2nd October the die was cast and India was definitely ordered to despatch one brigade of the 6th Poona division, in accordance with a warning order previously communicated, which had given instructions for the preparation of Indian expeditionary force "D," in view of the possible necessity of "demonstrating at the head of the Persian gulf." More precise orders were despatched on the next day, 3rd October, but in the meantime India had wired to the effect that it was assumed that the home government was confident that the proposed force was strong enough for its purpose, but "we cannot judge of this without knowing its instructions and objective." There followed on the 5th October an amplification of the despatch of the 3rd, indicating that the *role* of the advanced brigade was to protect the "oil tanks and pipe line" (which, in parenthesis, it may be mentioned, extended for 130 miles through Persian territory) and to "show Arabs that we intend to *support them against* Turks." In view of the fact that by promises and bribes the Turks were at the moment doing all they could to improve their relations with their Arab subjects in these parts, this expression contains elements of unconscious humour. Equally humorous—and of course equally unintentional in its humour—appears the Viceroy's telegram of the 5th: "Expedition to gulf. I suppose it has occurred to you¹ and the F.O. that we cannot land troops at Abadan without the risk of a protest from the Persian government and without in the event of war with Turkey violating the neutrality of Persia. Both these results would be regarded unfavourably by Indian Mohammedans. . . ." Apparently this had not "occurred" to the authorities in England, and in view of further cogent arguments submitted most fully a few days later by

¹ S. of. S. for India.

the government of India, the preliminary destination of the advance brigade was ultimately changed to Bahrein island.

On the 16th of October the 16th brigade of the 6th Indian division, together with certain technical and administrative units, under the commandment of brigadier-general W. S. Delamain, C.B., D.S.O., left Bombay, arriving at Bahrein on the 19th. There instructions were received to await further orders: no further advance was to be made. In view of the fact that every precaution to conceal the destination of the force had been rigorously observed, even, according to the report of Mesopotamia committee, to its sailing under sealed orders, this delay was unfortunate. It was of course impossible for a concentration of several transports to take place off Bahrein, and remain there for ten days, without the Turkish authorities of Basra hearing of it. The explanation seems to be that, this change of plan was partly due to the Viceroy's wire referred to previously, and also to sir L. Mallet's despatches from Constantinople, in which even as late as 29th October, he held out some hope that the Turkish entry into the war might still not take place. It must be explained that the instructions handed to general Delamain in Bombay, on 10th October, had been framed by the general staff at Simla on the basis of the secretary of state's orders for disembarkation at Abadan or Mohammerah, and it must be presumed that a realisation of the risks attending such a compromise of Persian neutrality before war with Turkey had actually broken out, together with some forlorn hope that it might still be avoided, had persuaded the home government to hold back at the last moment.

The instructions, then, under which the force sailed, contemplated a landing in Persian territory, probably before hostilities with Turkey had broken out, but possibly after: although there was actually a state of war existing before general Delamain was required to act upon them, these instructions must be considered in the light of conditions prevailing when they were framed.

They consisted of three parts: (a) secret instructions for the employment of the force; (b) plans of operation; (c) copies of official correspondence.

The "secret instructions," only briefly summarised in the "Official History," were published in full in the report of the Mesopotamia committee (p. 13) and are worth analysing in some detail.

The first paragraph starts by defining the rôle assigned to force "D" as that of "demonstrating at the head of the Persian gulf." It continues by emphasising the fact that Great Britain is still at peace with Turkey "and that you are therefore on no account to land troops in Turkish territory or take any hostile action against the Turks without orders from the government of India, except in the case of absolute military necessity."

Paragraph 2 must be transcribed in full: it runs as follows:—

"You will occupy Abadan island with the object of:—(a) Protecting the oil refineries, tanks and pipe line; (b) Covering the

landing of reinforcements should these be required; (c) Assuring the local Arabs of our support against Turkey."

Paragraph 3 deals with disembarkation at Mohammerah or preferably at Abadan.

Paragraph 4 urges that in dealing with Arabs all cause of friction should be avoided, "as their co-operation may be required in the event of a rupture with Turkey."

Paragraphs 5 and 6, dealing with reports and communications, are comparatively unimportant.

Paragraph 7 contemplates the possible rupture of relations with Turkey, in which case the remainder of the 6th division will be sent as reinforcements and "in the meantime you will take such military and political action as you think feasible to strengthen your position and, if possible, occupy Basra."

In conjunction with these secret instructions, the plans of operation, as they are given in the "Official History," are interesting—and confusing. Here we are told that they comprised plans for (1) the protection of British interests at the head of the Persian gulf; (2) the support of Mohammerah; and (3) operations in Turkish Mesopotamia; and there were included suggestions as to methods by which the ends, in the opinion of the general staff, could best be attained.

They contemplated, it seems, three objects differing widely, not only in the degree of military force needed, but also as to whether conditions of peace or war maintained.

In view, however, of Para. 1 of the "secret instructions," quoted above, it is a fair assumption that the first operation, *i.e.*, "protection of British interests," under conditions of peace with Turkey, was principally contemplated. This conviction is strengthened on reading the proposed method for attaining this object—it was suggested that a landing on Abadan island might be effected by an advance up the Hor Bahmanshir, a waterway *to the east of the Shatt-el-Arab and in Persian territory*, thus reducing the chance of a misunderstanding with Turkey.

We can then agree that as far as the "secret instructions" refer to the occupation of Abadan, we have a definite object, definite conditions assumed, a definite operation and a definite method indicated. So far so good. But it must be noticed that it was later discovered that the method, *i.e.*, the advance by the Hor Bahmanshir, suggested by the general staff of India, would have been quite impracticable with the water-transport available to general Delamain:¹ so it was not so good after all. It must be considered highly improbable that Turkey would not have interpreted as an act of war the navigation of the Shatt-el-Arab at that time by a fleet of British transports: and yet that was the only practicable way of arriving at Abadan.

As regards the precise ends to be obtained by this occupation, enumerated under (a), (b) and (c) of paragraph 2 of the "secret instruc-

¹ See footnote, p. 101, "Official History," Vol. I.

tions," there again appears to be confusion—they are incompatible both with peaceful relations with Turkey and with "support" to the Arabs; they are out of place, because not until paragraph 7 is a state of war with Turkey envisaged.

The only conclusion that can be arrived at if this line of argument be accepted, is that six out of the seven paragraphs of the instructions were worthless, as they contemplated an operation which in itself would have rendered impossible the conditions demanded.

To return to the three series of operations :—

(I) "The protection of British interests at the head of the Persian gulf," with the method suggested for its attainment, has already been dealt with.

(II) "The support of Mohammerah" : this would, it was considered, involve the occupation of Basra and obviously contemplated war with Turkey, thus meeting the conditions of paragraph 7 of the "secret instructions." But from the summary of the preliminary action suggested to general Delamain under this head, which includes the *occupation of the oil works at Abadan*, it must be presumed that this plan did not contemplate war as a result of previous action as discussed in the Secret Instruction earlier paragraphs. So the apparent connection between para. 7 and operation (II) seems actually not to have existed.

For (III) "Operations in Turkish Mesopotamia," it appears that nothing further was found to be said beyond what had already been laid down for (II), *viz.*, the occupation of Basra.

The omission is important. There was no "plan of operations," no suggested methods, for a campaign in Turkish Mesopotamia.

This digression has been long and involved : and in a sense it has been a beating of the air—since the declaration of war cut through the worst of the hideous knot of uncertainty and confusion. But it has been inflicted upon the reader of this article in an attempt to demonstrate how the cross-currents of political and military strategy resulted in a lack of a definite policy, and a consequent failure to be forewarned and forearmed, which handicapped the expedition from its earliest moments.

Before we return to general Delamain's force at Bahrein, where it had been awaiting orders since its arrival there on 19th October, the international situation must be briefly noticed. On 29th October the "Goeben" and "Breslau," with some Turkish destroyers, under command of the German admiral Suchon, bombarded several Russian ports in the Black sea : this was a virtual declaration of war, and on the 30th October the British, French and Russian ambassadors demanded their passports.

On the 31st general Delamain was warned by India to be ready to move at the shortest notice, and on 1st November orders for the actual operations in Mesopotamia were received from the India Office and the Admiralty. The orders from the India Office were addressed to the Viceroy and directed him to instruct general Delamain to carry out an immediate attack on Fao; then to clear the enemy from the Shatt-el-

Arab and vicinity as far as Shamshamiya, but not to advance on Basra until reinforced by another brigade; neither was he to occupy Mohammerah.

Those from the Admiralty to the S.N.O. dealt with co-operation and assistance for the proposed attack on Fao, and allotted to the sloop "Espiègle," then at Mohammerah, the task of protecting the oil-tanks of Abadan and British interests, generally, up the river.

The situation of the "Espiègle" does not appear to have been very satisfactory. The Admiralty orders required her "to deal with the guns posted opposite the oil works and to prevent any attempt to damage them . . ." In order to be in a position to carry out this rôle, she had to move out from Mohammerah and navigate some 10 miles of the Shatt-el-Arab, during most of which she would be exposed to Turkish fire from the right bank. Though well armed, she was an old vessel whose hull was not even bullet-proof, and it seems as though, had the Turks had their wits about them, they could have prevented the ship leaving the Karun river or have sunk her on her way down to Abadan. However, they did nothing.

The enemy's inactivity was fortunate. Had the Turks possessed any degree of initiative and energy, it might have gone hard with general Delamain's small force. There had been one or two hitches. Orders had been received at Bahrein on the 1st. On the 2nd, apparently as the result of a conference, it was decided to send an officer to Kuwait "to obtain information as to where troops could best be disembarked near Fao." The same day the senior naval officer informed the general officer commanding that H.M.S. "Ocean," which according to Admiralty orders was to support the landing, drew too much water to get within range of Fao and that it would take 48 hours to arm tugs and launches. However, as the officer sent to glean the essential information from Kuwait was not expected back till the 6th, the delay was not of much consequence! The next day the convoy moved to the bar at the mouth of the river.

By the 5th the officer in question had returned with the necessary intelligence, and the attack was decided on for the 5th.

Although it was discovered that there were insufficient boats to land simultaneously more than a quarter of the force detailed for the operation, the capture of Fao, the key of the Shatt-el-Arab, was effected with remarkable ease. A short bombardment by H.M.S. "Odin"—sister ship to the "Espiègle"—sufficed to silence the Turkish guns and disperse the Turkish infantry: all was over by 11 a.m., and an unopposed occupation of Fao was effected by the landing party during the afternoon. The first battle was won.

Having regard to the fact that the Turks had had at least ten days to a fortnight in which to organise their resistance, it is remarkable how little had been effected. Apparently nothing had been done to strengthen the mined defences of Fao, and perhaps as a consequence the small garrison, which included four guns, hardly stayed to fight—

which was fortunate for their opponents, who seem, judging by the 11th hour arrangements, to have scarcely contemplated "a landing in face of the enemy." Up-river no move had been made against Abadan, though artillery was available, and there would appear to have been nothing to hinder the Turks from making a bonfire of the oil refinery with complete impunity. The only enemy they had to fear—the "Espègle"—was in the Karun river, the egress from which their guns commanded. But nothing was done: under cover of darkness the sloop had moved out early on the 3rd, and on the 6th had been permitted to move down river to a position whence, as far as her limitations allowed, she was able to protect the oil works. By the 7th the landing force had moved up from Fao and Abadan was safe. It must be agreed that it was "honours easy."

And the luck still held. On the 8th general Delamain decided to land his force; and on the 9th November this operation was carried out, fortunately unopposed by the Turks, who not until the early hours of the 11th delivered their attack; by that time the camp was organised, and the small enemy force attacking was easily repulsed. But had the attack materialised during the landing, things might not have been so simple. According to the "Official History" . . . "The operation was carried out with some difficulty, owing to the wind, strong tide and the lack of suitable craft." The statement is admirably moderate: several men were drowned, a considerable quantity of gun ammunition was lost in the river; a large amount of stores was swamped and rendered useless; and the operation took two days.

This must not be construed as a criticism of those on the spot. They were required to make bricks without straw, always a difficult and confusing task! But it is almost inconceivable that an expedition should have been launched in Mesopotamia so utterly ill-provided as regards water transport, for campaigning in a country the very name of which, one might imagine, would have been a reminder of its necessity.

There was, indeed, a lack of suitable craft: "the tugs drew too much water and all the towing had to be done by the two steam-boats from the 'Ocean' and the small one from the 'Odin.' At Bahrein the sappers had prepared eight ship's life-boats to carry seven or eight mules each, and only four lighters could be obtained from the oil works."

The difficulties at Fao have been noticed already, and here at Sanniya an enemy of any energy would have had his second chance. Fortunately he missed it.

The storm during the landing at Sanniya brought the first experience of some of the difficulties of campaigning in Mesopotamia. A quotation from the report of the Mesopotamia committee gives a good idea of what these were. "The country . . . is a vast plain intersected by swamps and, generally speaking, without roads of any description. . . The soil is a sandy loam which under rainfall is converted into tenacious mud. In wet weather and floods none of the country bordering the river is fit for wheeled vehicles, being deep in water and mud . . . the

Tigris is subject to sudden floods which overrun the banks and convert the adjoining *terrain* into temporary and almost impassible quagmires. The climate is exceptionally hot, damp and enervating, with periodical snaps of icy storms in the winter. In the heat of summer a double-fly tent is an inadequate protection against sunstroke."

Partly owing to the great difficulty of moving over the rain-sodden desert, general Delamain postponed any further advance for the time being against the enemy, who were reported eight or ten miles up-stream near Shamshamiya; but delay was mainly caused by his inability to secure any news of the reinforcements which were by now on their way. These consisted of divisional headquarters 6th division, 10th brigade R.F.A., the 18th infantry brigade, divisional troops and administrative units. The G.O.C. 6th division was to accompany these reinforcements and on reaching his destination was to assume command of the expeditionary force.¹ Sailing from Bombay and Karachi on the 7th, 8th and 9th of November, general Barrett and his reinforcements arrived at the mouth of the Shatt-el-Arab on the 13th and established communication with general Delamain. The latter had not been altogether happy with his communications with India out of gear, and expecting to be attacked at any moment by a force estimated to amount to possibly ten battalions. This enemy force had been located at Saihan, within four miles of Sanniya camp. "General Barrett," we read in the official history, "gave orders for his transports to proceed up the river to Sanniya next day. . . . It was necessary to concentrate at once to meet the reported Turkish advance. As, however, only five river pilots were available, and as no lighters and tugs could be spared from the work of disembarking troops to lighten the cargoes of two of his transports which were too heavy to cross the bar, only a part of his force could be moved up at once. . . . Only the 17th company of sappers and the 63rd field battery disembarked that day" (*i.e.*, 14th November). By the evening of the 16th all the cavalry and infantry had landed, but no more field artillery. It was urgently needed.

On the 14th general Barrett had received the following order from India: "Your objective is Basra. If . . . you consider your present force strong enough you will move on Basra." However, it was not a question of strength only; first came mobility, and herein lay difficulties which it seemed had never occurred to India. The necessity of both water transport and land transport had apparently escaped the notice of those responsible. It is as though army headquarters at Simla had expected I.E.F.D. to move by some process of levitation. To quote from the official history once more. "General Barrett could now take stock of his position. The difficulties of disembarkation and the small amount of land transport ashore made him dependent on the river transport for the daily maintenance of his force in munitions and supplies.

¹ The remaining infantry brigade of the 6th division, the 17th, left Bombay on 24th November.

Even for this the available steamboats and lighters were barely sufficient. It consequently became a question of how much more of his artillery and auxiliary units he was wise in landing till he had obtained the use of more river craft from Mohammerah and the Karun river." Between Mohammerah and general Barrett lay the enemy.

In other words, in order to get at the enemy the shipping must first be got at: in order to get the shipping the enemy must first be got at. This kind of argument is, we believe, commonly known as a vicious circle. "Vicious" is scarcely too strong a word. General Townshend has some pointed remarks to make on it.

" . . . The division, united at the mouth of the Shatt-el-Arab, could march direct on Basra—which I believe had been the original project of the operations. . . . However, the entire absence of transport with Barrett's force put this plan out of the question. This was in accordance with our national traditions in the direction of overseas expeditions . . . Our military history largely consisted of a long story of maritime expeditions, in which a small military force was taken in ships and landed on some island or some coast, without any transport to enable it to march three miles inland. . . . Wolfe in the expedition against Quebec 150 years ago . . . at least had lighters and flat-bottomed boats in which to disembark his troops—and Barrett hadn't even that! It will be seen that the Mesopotamian expedition displays, especially in the way of transport available, all the worst faults of former expeditions, and some peculiar to the campaign besides. . . . Basra was entered unopposed on 22nd November . . . the ships steaming up the river and picking up *en route* a number of river craft whose skippers had managed to evade the Turkish authorities and slip into the Karun river on the declaration of war. It was thus entirely due to luck and the action of these skippers that the force had any sort of river craft at all, for none had been provided by the Indian authorities."

In the meantime, however, a Turkish force of indefinite but considerable strength was known to be concentrating within four miles, and it was above all things necessary to secure the disembarkation, now tediously proceeding, from interruption. To effect this general Barrett rightly decided on offensive action. On the morning of 15th November, general Delamain moved out with two battalions and one mountain battery—later reinforced by another battalion and another mountain battery—and located the enemy at Saihan. After meeting with considerable opposition—especially on the right flank amid date plantations—the enemy was driven out from his entrenched position and his camp captured. General Delamain had been ordered not to become seriously involved, and in view of the situation at Sanniya, it seems that he was perfectly correct in now withdrawing to camp, in accordance with these orders, instead of following the defeated enemy. The early period of the Mesopotamian campaign suffered from the habit of "reconnaissance in force"; but it is scarcely fair to class this action as such. It had definitely located an enemy concentration and estimated

its strength, and from this aspect was valuable as reconnaissance. But general Barrett's plan was surely to deliver an attack with a limited objective—that of breaking up the enemy concentration and gaining time for the disembarkation of his reinforcements; and in that he succeeded.

He was, however, definitely faced by the problem already referred to. It had become obvious that without more water-transport his force was uninobilised. To move on Basra *via* the desert was impossible; to fight a battle at any distance from the river was impracticable; not only was the land transport totally inadequate but, owing to heavy rains, the country was largely impassable. The solution lay in the shipping, which long had taken refuge in the Karun river, but, in order to drive the Turks from their commanding position at the mouth, considerable risks had to be faced. General Barrett's intelligence indicated that the enemy were strongly entrenched at Sahil, some eight miles north of Sanniya and covering Mohammerah with reserves at Baljaniya. This position he would have to attack and capture, under the grave disadvantages of limited mobility, imposed upon him by his complete dependence on his river transport, with all that that it seemed likely to imply as regards shortage of ammunition, medical stores and auxiliary services generally. However, owing to somewhat pressing political, as well as military, reasons, the decision had to be faced and general Barrett on the 16th communicated to India his decision to advance immediately¹: "the remaining field batteries were to be disembarked as rapidly as possible and to follow him as soon as circumstances would permit."

The force, consisting of the 16th and 18th infantry brigades, two squadrons of cavalry², one battery of field and two of mountain artillery, and certain technical and administrative units, left the camp at Sanniya early next morning, 17th November. The baggage was to be carried by the ships, the infantry had 200 rounds on the man, and other arms as much ammunition as possible; only the "bearer sub-divisions" of the field ambulances were to accompany the force.

The battle was not fought "according to plan." General Barrett, realising that the peculiar disadvantages under which he would be obliged to fight must necessarily gravely compromise his power of manoeuvre, came to the sound conclusion, that the only hope of inflicting a defeat on the enemy lay in pinning him to his ground and thus, by superior tactics, denying to the enemy advantages which faulty organisations had in advance denied to the British force. With this object in view general Barrett determined to turn the right of the enemy's position—that is, their strategic flank—and to drive them on to the river banks, where the ships' guns would be able to deal with them—and this, in view of the small force of artillery on land, was an important consideration.

¹ Vol. 1, "Official History," p. 119.

² During the battle another section of field artillery was brought up.

It must be owned that general Barrett's problem was a difficult one, but the "Official History" points out with some justice that "it is generally inadvisable to make a definite plan of attack before reconnaissance or contact with the enemy has discovered his dispositions." General Barrett was actually in considerable doubt as to the extent and direction, or even the locality, of the enemy's position. No proper reconnaissance appears to have been attempted, and this can only partly be excused by the difficulties of ground and visibility, great though they were. The troops were already committed to the "definite plan of attack" when it became evident that a serious miscalculation had been made as to the extent of the Turkish position and the location of both flanks. As a consequence, general Barrett was obliged to reverse his plan, and readjust the attack so as to hold the enemy's right and centre with the 18th brigade, and turn his left flank with the 16th brigade. Further difficulties were caused by a heavy rainstorm, which made the 18th brigade lose direction, and seriously hampered movement. The ground was now ankle-deep in slippery, clinging mud, and for a time the advance almost came to a standstill. Men, guns and horses could only move at a slow walk, and the artillery waggons stuck heavily and frequently."

However, the dash of the 16th brigade under the very able leadership of general Delamain carried the day. The Turkish left, failing to take the valuable opportunity for a counter-stroke which had presented itself earlier, was duly mopped up; while the right and centre sat tight without any serious attempt to intervene. The success of the 16th brigade on the Turkish left was the signal for their whole line to retire, and a general retreat commenced in a north-westerly direction. As the state of the ground prevented rapid movement, and palm trees interfered with effective co-operation from the ships' guns, the enemy were able to withdraw in comparative order, although their losses were considerable.

Due to the disadvantages under which battle had been joined and to the difficulties which now immediately presented themselves, no pursuit was possible. Rain had reduced the neighbouring desert to a quagmire; then followed a sandstorm making communications impossible; many wounded had still to be collected; and the transports, on which were medical stores, greatcoats, blankets and cooking pots, were unable, owing to the high wind, to anchor sufficiently near shore to land their stores. It seemed that nature had conspired to increase the almost insuperable difficulties already existing.

These had been eased, though not entirely removed, by the victory at Sahil, which now made available the very valuable river-steamers which had been lying at Mohammerah, thus increasing the transport at general Barrett's disposal. "But," as the "Official History" says, "it was evident that these makeshift arrangements for maintaining the force could not suffice much longer, and it was fortunate that the necessity for the attempt did not arise."

Reconnaissances from the 18th to 21st established that the Turks were holding a position at Baljaniya, with four guns covering an obstruction in the river channel. Once more, had the Turks shown any energy or determination, general Barrett might yet have been held up, and the fall of Basra at least postponed. On 20th November general Barrett telegraphed to India that he considered the force at his disposal strong enough to attack the enemy at Baljaniya, and that he was anxious to do so immediately the great difficulties of landing artillery and stores had been overcome. The result of this engagement and the state of the obstruction in the river would decide his plans as regards Basra. "Owing to obstruction at upper end of Dabba island, ships can go no further, and I am now dependent on them for supplies. Owing to enemy's field guns in position commanding it, 'Espiègle' has not been able to approach nearer than 1,000 yards, so cannot make close examination. As we advance we hope to turn those guns out. . . . I cannot move except with help of river transports as I have only very few mules available."

It will be seen, that there was apparently every chance of some more hard fighting, and some more hard work, before Basra could be reached; but the prospects, as regards the former at least, were destined to be suddenly and unexpectedly changed.

On 20th November, the evening before the proposed advance and attack was to take place, news arrived that the enemy had evacuated Basra and was retreating northward. His heart had failed him.

On the 21st, confirmation of this news was received through British residents in the town, and a reconnaissance proving that, like most things Turkish, the obstruction in the river had not been effectively completed, the British sloops passed through!

Little remains to be told as regards the capture of Basra. The warships arrived off the town at 5.30 p.m. on the 21st, in time to prevent the looting Arabs from thoroughly sacking the bazaars. On the 22nd, a detachment under general Fry arrived by river-steamer early in the morning, followed later by the main force under general Barrett, which had marched from Sahil. A ceremonial entry was made next day, the Union Jack hoisted and a proclamation read in the presence of the leading notables of the town. A definite footing in Turkish Mesopotamia had been effected.

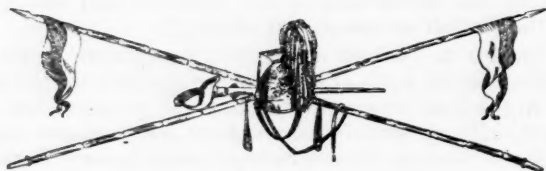
It is not proposed to carry the story further. The record of the next twelve months is perfectly exemplified in the story of the initial operations. It is a catalogue of tactical successes, which, if discounted on one hand by the lack of determination evinced on all occasions by the enemy, must, in consideration of the appalling administrative difficulties and climatic conditions, evoke the highest admiration. It was a triumph of improvisation—improvisation which could never have succeeded against any but an enemy deficient in energy, in training, and in higher organisation. The "Official History," in a passage quoted, speaks of "makeshift arrangements for maintaining the force" which,

in November, 1914, "could not suffice much longer." It is no exaggeration to say that, up to the early part of 1916, everything connected with the maintenance of the force was makeshift—supply, transport, armament, medical arrangements, reinforcements; nothing was foreseen, nothing was anticipated, nothing was deduced from past experience. It is true that this campaign cannot be considered apart from the world war and that therefrom may be argued much to excuse the vacillations and the doubts of "policy"—and yet, a hundred years before, Great Britain had experienced the repercussion, in eastern theatres, of a European war. But when all has been said, there can be few arguments to justify "makeshift arrangements" in a campaign that was in no way exceptional to British history.

Efficient organisation for war demands the power to envisage the conditions to which it is to be applied; to see into the future; to estimate the probable and the possible in their true proportions. It demands the capacity of logical deduction from established facts *plus* that divine fire of imagination which deals with the "unknown quantity."

Improvisation is no longer an alternative. That hard-worked ally of our race, in which we put our trust through a hundred years of war, did its brave best here, and failed.

Imagination? For a few fortunate individuals an invaluable gift, at the right time and in the right place. But for a nation, the habit of intelligent anticipation seems a quality more worth cultivating.



CARRYING-POWER IN WAR.

SOME LESSONS FROM 1914-1918.

By C. ERNEST FAYLE.

IT is an accepted truism to-day that war demands the devotion to military ends of the whole national energies, and that, once hostilities have broken out, every other consideration must be subordinated to the supreme object of winning the war. Like most statements of principle that reduce a big and complex problem to its simplest terms, this maxim may become dangerously misleading unless we keep constantly in mind exactly what those terms imply. We are apt, unconsciously, to confuse the end with the means, and to assume that, because the end proposed is military, the military factor must be equally predominant in the means employed, and all commercial, industrial, and financial considerations must be swept aside as irrelevant when they come into conflict with the requirements of the fighting services.

A moment's reflection will show the fallacy of this assumption. The efficiency of the fighting services themselves depends on the maintenance of economic activities. Guns, ships, tanks, aeroplanes, munitions, and all the material of scientific warfare, are the products of industry and commerce. The food supply of the forces is as vital as the supply of war material. The maintenance of a minimum standard of life for the civil population is an essential factor of the "will to victory." The maintenance of civil industries is essential, to sustain the commercial credit by means of which food and war material are procured.

In theory this is self-evident. In practice, it is not so easy to appreciate the necessity for incessant adjustment, in man-power, material and finance, between the claims of the fighting services and those of the activities by which they are sustained and equipped: yet it is useless to expect that the stream of essential supplies will continue to flow, if the industries and commerce that maintain it are denied the liberty to function.

There is a second fallacy inherent in too narrow an interpretation of the axiom with which we started. Because it is necessary for economic activities to be wrested from peaceful to warlike purposes, it is sometimes suggested, or implied, that those activities themselves should be placed under military direction. Soldiers and sailors who are, very properly, impatient of civilian interference in the field of strategy, find some difficulty at times in realising that the field of transport and supply also bristles with technical problems full of pitfalls for the amateur. It is for the representatives of the services to formulate their requirements

from industry and commerce; it is for the practical experts to say how those requirements can best be met.

It will be obvious that the adjustment of military and economic considerations, so necessary if the requirements of the fighting forces themselves are to be fully and promptly satisfied, is far more difficult to-day than at any period in the past; partly because the immense size of modern armies and the application of science to warfare have greatly increased the demands of the services, partly because the machinery of production and distribution is so much more complex and delicate, and, consequently, so much more easily dislocated. It may, therefore, be interesting and profitable to take one primary factor in the problem—the factor of carrying-power—and see how it was affected, and with what results, during the great struggle of 1914-18.

It is hardly necessary to dwell at any length on the immense importance of carrying-power in the war. The whole military effort of the British empire was based on the possession of a mercantile marine capable, while continuing to perform its indispensable normal function, of transporting great bodies of troops to the various theatres of war, and keeping them supplied with all they required to make their presence effective. Including the movement of allied and American troops, of men on leave, and of men transferred from one theatre to another, the transport department had arranged, by the signature of the armistice, for 23,700,000 individual passages, equivalent to moving on a single voyage one-half the inhabitants of the British isles. In the cross-Channel traffic alone, the volume of munitions, stores, and supplies had grown by the end of the war to 8 or 9 million tons a year.

All this, it must be remembered, was additional to the carriage of commercial cargoes, the volume of which may be seen from the following table of British, French, and Italian imports during the year 1917:—

Imports, 1917, exclusive of oil fuel carried in tankers.

	United Kingdom. 1,000 tons	France. 1,000 tons	Italy. 1,000 tons
I. Food, feeding-stuffs and tobacco	14,338	6,085	3,029
II. Ores, metals, munitions, and chemicals.	11,902	7,944	1,750
III. Coal and coke - - - -	—	17,279	5,042
IV. Miscellaneous materials and manufactures.	8,177	1,894	1,288
Total - - - -	34,417	32,302	11,109

On these figures two comments may be made. In the first place they represent the minimum requirements of a state of war, after civilian consumption had been drastically cut down, and stocks of food, munitions, and fuel dangerously reduced. In the second place, they dispose completely of the idea that dependence on imports is a weakness peculiar to Great Britain. Without immense imports of food and military fodder, munitions and munitions materials, coal for the munitions factories and railways, neither France nor Italy could have sustained a prolonged resistance. It may be added that, by the end of the war, very nearly one-half of the tonnage employed in the import service of France and Italy was under the British flag.

In any war in which Great Britain is engaged, the development and protection of carrying-power must be a factor not merely contributory but vital to success, and if the war is waged with the assistance of allies, the strain on British shipping will be increased rather than diminished. It is necessary, therefore, to face the fact that the maintenance of carrying-power involves problems of peculiar delicacy, since they affect not merely the allocation of resources but the actual conduct of operations.

Granted that seaborne trade must be defended, it would appear, at first sight, that the choice of method—convoy, patrolled routes, dispersal, and the like—is a question of naval strategy pure and simple. Yet if the methods adopted involve such delays in sailings, or such a prolongation of voyages as will prevent the ships from bringing in, within a given period, the essential minimum of supplies, the object of protection may be defeated, however great the security assured to the ships themselves.

This reminds us that the percentage of losses to sailings, though a very popular test by which to judge the efficiency of the attack or the defence of commerce, is extremely unreliable. It is a method of scoring, not a criterion of efficiency. The one thing that really matters is the volume of supplies received by ourselves or by our opponents, and this may or may not vary in proportion to the ratio of loss.

In the late war, the percentage of losses to sailings was probably far smaller for German shipping than for our own; for what little trade continued under the German flag was mostly carried on in the comparative security of the Baltic. The decisive factor was not the percentage of losses to sailings, but the fact that the bulk of German shipping did not sail at all. Of more subtle significance was the initial effect of our own adoption of the convoy system in the Atlantic. The adoption of convoy was followed by an immediate and very striking diminution in the rate of loss; but, in the north Atlantic, its first effect was to increase by 25 per cent. the average time occupied in the round voyage. In other words, it reduced, by 25 per cent., the number of voyages made, and the result was to neutralise, for the time being, the benefits derived from more efficient protection. Fewer ships were sunk; but the volume of supplies received was diminished rather than increased. Again, in the early stages of the war, there is no doubt that several ships were saved

from falling into the "Emden's" hands by the detention of shipping in Indian ports; but the Admiralty came, rightly, to the conclusion that the holding up of supplies, due to this stoppage of trade, was a more serious matter than the risk of an increase in the losses, and gave orders for shipping to be released.

It is quite true that the detention of shipping or the prolongation of voyages does not involve, like capture or destruction, a permanent loss of carrying power, and losses may become so heavy as to compel the adoption of almost any measure for their reduction, even at the price of drastic interference with the movement of trade. On the other hand, the stocks of food and materials which can be carried at any one time are limited; the demands of the navy, army and air force for munitions and supplies are urgent and immediate; a few weeks may decide the crisis of a campaign. There is a minimum below which the supplies received during a given period cannot be allowed to fall, and it will be a small consolation, if starvation or shortage of munitions brings about defeat, to know that the tonnage available after the war is greater than it might have been if risks had been run in order to maintain supplies. At the crisis of the submarine campaign it was proposed that, in order to provide all ships sent to sea in the danger zone with absolutely effective escort, one-half of our shipping should be treated as a reserve, and laid up, or confined to voyages outside the war zone. It is conceivable that under such conditions, the proportion of losses to sailings might have been reduced almost to nothing; but the proposal had to be rejected, because half our shipping would have been unable, even had loss been entirely eliminated, to fulfil the essential requirements of ourselves and our allies.

It is by the volume of cargoes actually delivered that the success of the defence or the attack must be estimated, and the volume of cargoes delivered will not depend only on the number of ships available. Much was heard during the war of the "tonnage problem"; but the use of this expression, with the accompanying tendency to think of the problem solely in terms of losses and replacements, is apt to be misleading. The real problem is not "tonnage" but "carrying-power," and carrying power depends not only on the number of ships available, but on the extent to which they are utilised. It depends, that is to say, on the average cargo carried, and the number of laden voyages made within a given time.

This last-named factor, it must be remembered, is of comparatively recent introduction. In the sailing era, few ships employed in foreign trade, at any rate on the longer routes, made more than one round voyage in the year. In 1913 the steamers engaged in trade outside the home trade limits (Brest to the Elbe) averaged four and a half round voyages a year. Even under war conditions, ships in the North Atlantic trade maintained, for a long time, an average of eight voyages.

One result of these changed conditions is, of course, that a given percentage of losses to sailings represents a much more serious blow to

commerce than in the past. In the sailing era, a ratio of five losses to every one hundred round voyages in the foreign trade represented an annual loss of little more than 5 per cent. of the tonnage employed, and with such a loss replacement could easily keep pace. But on an average of four and a half round voyages a year, the cumulative effect of a 5 per cent. ratio of loss means an annual reduction of a little over 20 per cent. in the tonnage available. In the north Atlantic trade, with an average of eight voyages a year, it would imply the destruction, in a single year, of one-third of the shipping employed.

Further, the power to make repeated voyages, coupled with the increase in the size of individual ships, has led to a great reduction in the number of vessels employed, as compared with the volume of trade to be carried. In 1775 the shipping employed in the foreign trade of Great Britain comprised 6,219 ships, with an average size of about 157 tons.¹ In December, 1913, the average size of steamers employed in foreign trade (including that within the home trade limits) was well over 2,000 tons net, and the total number was only about 4,500. The number of ocean-going steamers, on which we mainly depended during the war, was little over 4,000, even including those on dominion and colonial register. Thus the loss of a single ship of average size was a far heavier blow than in earlier days, since she represented a much larger proportion of the total carrying power available.

The main effect, however, of the change from sail to steam has been to increase enormously the complexity of the factors that go to make up carrying-power. The number of ships available, careful stowage and avoidance of ballast passages are no longer the only considerations. Speed at sea has become far more important now that its reward is not merely an early market but the possibility of additional voyages. But speed at sea is only one element in the quick turn-round which has become the most vital element of carrying power. The number of voyages a ship can make in a year depends not only on her speed at sea but on the rapidity with which she can be loaded and discharged, and this, in turn, depends not only on the actual equipment of the ports, but on the prompt arrival of cargo at the port of loading and on the rapid distribution of cargo from the port of discharge. The ports, docks, quays, and wharves; the railways, roads, and canals by which the ports are served; the offices in which arrangements for the voyage are made; the cables by which fixtures are effected and instructions given, are all as important as the ships themselves. The purchase of the goods, their loading, their insurance and finance in transit, their carriage, discharge, and distribution are all integral parts of one great transaction, and a block or failure anywhere along the line—at the port of shipment, at the port of discharge, in the warehouse, on the railways, or in the counting-house—will suffice to hang up the whole process and keep tonnage idle during precious days when it might be setting out on a new voyage. The carrying power of our shipping depends, in fact, not merely

¹ Macpherson, "Annals of Commerce," iv, 11.

on the number, size, and speed of the ships themselves, or on the skill and energy with which they are run, but on the smooth working of the whole machinery of commerce.

Let us see, then, what we may learn from the experience of 1914-18 as to the effect of war on this complex organism which we call carrying-power. In the first place, of course, it reduces, by the capture or destruction of shipping, the actual tonnage available. Though the most obvious, this, as we have seen, is not necessarily the most important factor; but in 1917, when the total losses inflicted by submarines, mines, and raiders exceeded 3,700,000 tons gross, it came near to being decisive. Here, there is one point that needs to be emphasised. So long as the rate of loss exceeds the rate of replacement, it is the *cumulative* effect of losses which is of vital importance, rather than the actual monthly figures. After reaching its high-water mark in April, 1917, the curve of losses fell away rather sharply, and from September onwards the figures never exceeded, and seldom approached, more than about half the April total. There has been, therefore, a disposition to regard the failure of the submarine campaign as assured by the summer of 1917, and to assume that, from the beginning of 1918 at any rate, the position was free from anxiety. To argue thus, is to ignore the cumulative effect of sinkings. By January, 1917, the available ocean-going tonnage was already 926,000 tons, or 5.3 per cent., less than before the war, and this, coupled with the withdrawal of neutral shipping from allied trade, and other factors to be presently discussed, rendered it necessary to estimate for a reduction of 6,000,000 tons in imports during 1917.¹ This implied the necessity for drastic restrictions on consumption, a ruthless cutting down of the materials imported for civil industries, and working on dangerously small margins in respect of essential stocks. The first six months of the unrestricted campaign saw a net reduction of 1,380,000 in the tonnage available. After this, the curve of losses fell more sharply; but in every month up to and including February, 1918, the losses exceeded replacements, and by February 28th the available tonnage had been reduced by a further 800,000 tons, making a total reduction of 2,180,000 tons since 31st January, 1917. Thus, despite the reduction in losses, the tonnage position was steadily deteriorating, and every month brought nearer the point at which the available tonnage would be definitely inadequate to maintaining the essential minimum of supplies, and at the same time rendering to the fighting forces and the allies the indispensable services without which they could not continue the war.

From March, 1918, onwards, the rate of replacement began to overtake, with some fluctuations, the rate of loss; but owing to a steady increase in the number of ships under repair, and to additional demands on tonnage, notably those of American trooping, the situation was not perceptibly eased. The cumulative losses of the years 1916-17 were never made good, and though we just pulled through without abandonment of any part of our war effort, it was by the skin of our teeth and, as will be

¹ The actual decrease was 7,000,000 tons.

explained later, by help of the United States. The submarine campaign came nearer to success than we are willing to admit.

The net reduction in tonnage need not, however, have been so great but for other effects of the war, less obvious, and less noticed than the ubiquity and persistence of the submarine attack. It was no new thing for British shipping to suffer heavy losses; it was new and startling that so little should be done to replace the ships lost. During the Napoleonic struggle of 1803-14, war and marine losses are estimated to have wiped out 40 per cent. of the tonnage on the register at its outbreak; but not only were these losses made good by capture or by new construction, the tonnage on the register had actually increased, by 1814, to the extent of 21 per cent., the greater part of this increase consisting of new ships.¹ During the war of 1914-18 we built less than 4,200,000 tons of ocean-going shipping, as against 8,500,000 tons lost by war or marine perils, and after allowing for all gains, even requisitioned neutrals, the available tonnage on 31st October, 1918, was less by 17·7 per cent. than at the outbreak of war.

Far from expanding our output of merchant tonnage, we allowed it to decline from nearly 2,000,000 tons gross in 1913 to a third of that amount or less in 1915 and 1916. Even in 1917 we built only 1,200,000 tons, as against war and marine losses amounting to 4,000,000. This failure to replace losses was due, in the main, to naval and military demands. The immense programme of special construction undertaken by the Admiralty in 1914 left few ships and little labour or material available for mercantile construction. Recruiting for the new armies withdrew large numbers of skilled workmen from the shipyards and marine engineering shops. To naval and military competition was presently added that of the Ministry of Munitions, whose demand for steel rendered it difficult to satisfy even the Admiralty requirements. Throughout the greater part of the war it was the insufficient allocation of steel, above everything else, that restricted mercantile construction. The improved output of 1917 and 1918—insufficient as it was—was due much less to the adoption of the standard types than to the fact that, for the first time, a real effort was made to obtain for merchant shipbuilding a somewhat more adequate allocation of material.

The primary importance of fulfilling naval and military requirements may be fully admitted; but it is almost inconceivable that, had the authorities realised from the first how absolutely the whole military effort of the alliance rested on the basis of carrying-power, and how limited were the resources of British shipping, they would have imposed on the mercantile shipbuilding of the country the restrictions that paralysed it in 1915 and 1916, and rendered its subsequent recovery so difficult.

Two explanations may be given for this and for many other failures in foresight and perspective. In the first place, the military necessity of squadrons and divisions is more easily appreciated than the needs of the

¹ See Professor W. R. Scott, "Mercantile Shipping in the Napoleonic Wars," in *Scottish Historical Review*, Vol. 14, Oct.-July, 1916-17, pp. 272-5.

services by which they are supplied and equipped. In the second place, the very success with which trade was maintained and transport provided during the earlier stages of the war seems to have impressed on the naval, military, and civil authorities a belief that the resources of British shipping were inexhaustible. There were 10,000 steamers of 100 tons and over upon the register of the United Kingdom, and, despite repeated warnings, it does not seem to have been effectively realised that less than 40 per cent. of these were suitable for the purposes of ocean trade. At any rate, it is difficult to explain otherwise the comparative complacency with which losses were regarded, the restriction of shipbuilding, and the prodigality with which demands for tonnage were met.

Throughout the first two years of the war enemy action had less effect in reducing the tonnage available for imports than the diversion of shipping from commercial employment to war uses. Our total losses by raider, mine, and submarine to July, 1916, amounted to about 2,500,000 tons. The tonnage of ocean-going steamers alone in naval and military employment on 30th September was nearly 4,200,000 gross, and ships representing 2,200,000 tons more were allocated to the service of the allies.

It was essential, of course, that the navy and army should be provided with auxiliaries, colliers, transports, storeships; that the allies should be assisted to obtain the cereals, fuel, and munitions they required; but no ship can be in two places or two services at once, and the result of this diversion was felt in soaring freights and diminishing supplies. Unfortunately, it was the symptom, not the disease that attracted attention, and while attempts, mostly ineffectual, were made to check the rise in freights, little was done to increase carrying-power. Down to the spring of 1916, when the shipping control committee succeeded in putting on the brake, it seems to have been taken for granted that every demand of the fighting services or the allies must be met, in full, as a matter of course, and practically without enquiry.

During the earlier stages of the war, there is no doubt that the use made, both by ourselves and by our allies, of requisitioned tonnage was extremely wasteful, and was accompanied by much unnecessary dislocation of trade. The emergency demands of the allies, the vacillations of policy that marked the Dardanelles campaign, compelled the transport department to take up, at short notice, vessels already fixed and even partly loaded. The failure to provide proper facilities for discharge at Mudros, despite the protest of admiral Wemyss, led to prolonged detention of transport in the *Ægean*. Congestion at the northern French ports slowed up the cross-Channel traffic. Failure to appreciate the seriousness of the growing shortage of tonnage led to the retention, in many services, of redundant vessels.

From the appointment to the transport department, in 1915, of an advisory committee of shipping experts, date many reforms, more especially the utilisation of returning naval colliers for ore and other cargoes, under a system of temporary release, and the officials of the department

itself made continual representations as to the necessity of a more economical use of shipping. They had, however, no official right of criticism over the employment of requisitioned vessels, and it was not until the beginning of 1916 that the revelations of the Mediterranean transport commission and the urgent representations of the shipping control committee waked the Government to a real sense of the danger. Then, at last, a halt was called to the allocation of shipping to the allies, the necessity of releasing promptly all vessels not actually required was impressed upon the services, expert advice was sought and accepted in the utilisation of cargo space by careful stowage, and the increase of annual carrying-power by accelerating turn-round. The cross-Channel traffic was drastically re-organised, as a result of the difficulties in the supply of ammunition experienced during the battle of the Somme, and the French ports cleared by the provision of inland depots for sorting and assembly. By one means or another the tonnage on naval military service was reduced between April, 1916, and March, 1917, by about 1,700,000 tons, and subsequent to that date, further improvements in organisation enabled a continually expanding volume of traffic to be carried without appreciable increase in the tonnage employed.

Tonnage, however, as we have already seen, is only one factor of carrying-power. In January, 1915, when the government consulted the shipowners as to the cause and cure of the rise in freights, the owners pointed out that abnormal freights were simply the reflection of a discrepancy between the demand for carrying power and the supply, arising from the withdrawal of tonnage from commercial employment, the longer voyages arising from the diversion of the continental trade to more distant markets, and, above all, the delays caused by congestion of the ports. They urged that they should be given facilities for new construction and that enquiry should be made into the employment of requisitioned tonnage; but it was to the provision of remedies for port congestion that they devoted most of their suggestions.

This congestion of the ports was due to many causes. The total or partial closing of certain ports, used as naval or military bases, increased the strain on the rest. The demands of the army and navy for accommodation and facilities, reduced their receiving power. Military recruiting withdrew some thousands of the strongest and most skilful workers. Military traffic and the despatch of rolling stock to France led to a serious shortage of trucks. The decision of the government to maintain railway rates at the peace level was a heavy blow to coastal shipowners, whose working expenses had greatly increased, and who found it difficult to compete; the result was a large diminution in coastal traffic, and an increased strain on the railways themselves.

The result of these, and of other factors, such as the redistribution of trade, and the space occupied by prize cargoes and ships brought in for examination, was that the chief ports, especially those on the west coast, were seriously congested so early as the end of 1914. The distribution of imports was slow; the quays and transit sheds were choked with goods

awaiting removal; ships took far longer than usual to load and discharge; other ships were kept days, or even weeks, awaiting a berth.

All through the spring and summer of 1915 the committee for the diversion of shipping were pressing vainly for attention to the matter. In October of that year the port and transit executive committee was appointed. Their appointment was followed by an immediate improvement in the direction of better co-ordination between the competing claims, naval, military, and commercial, on the facilities of the ports. In other respects, they had to wait longer before they could achieve their purpose. Their programme comprised the protection of dock labour from further depletion; the creation, from the home defence force, of a mobile, central labour reserve—the transport workers battalions—working, when required, under civilian conditions, so as to avoid any appearance of industrial conscription; the pooling of railway trucks belonging to the different companies and private owners; the imposition of penal rents on cargoes, whether for private owners or government departments, not removed from the quays within a reasonable time. In each of these directions there was much passive and some active resistance to be overcome; for, despite repeated warnings, the gravity of the port position was never really appreciated. During 1916 and 1917 however, the proposals were gradually carried into effect, and in the spring of 1917 the situation was further eased by the drastic restriction of non-essential imports.

So early as October, 1915, the Liverpool steam ship owners' association had pointed out that, so long as the carrying power of the available shipping was unequal to the demands of importers, not only would freights be high, but there would be a grave danger of essential supplies being shut out; since the shipowners had neither the knowledge nor the power to apply other methods of discrimination than the freight test. The government alone possessed both the power and the material for judging accurately the requirements of the nation, and, by prohibiting the import of non-essentials, they could bring the volume of traffic within the capacity of the available tonnage, thus ensuring, automatically, the reduction of freights, and the provision of ample space for the import of essentials. Throughout 1916 the port and transit committee and the shipping control committee continued to press for import restrictions, both for the above reasons and as a means of relieving the strain on the ports. The government, however, preferred to attempt more direct measures of freight restriction, which left untouched the problem of carrying-power, and it was not until March, 1917, that restrictions were imposed on a scale large enough to affect the situation.

Meanwhile, new causes of congestion had arisen. The development of the submarine menace led to increased use of the west coast ports, with the object of avoiding Channel risks, and the incidence of traffic became more uneven than ever. Increased working expenses and heavy losses by mine and submarine still further diminished the coasting traffic. The wear and tear of heavy munitions traffic began to tell on the rolling stock of the railways, and facilities for repair were quite inadequate, owing to

the demands of the munitions industries on plant, material, and labour. The vast extension of government trading created grave difficulties. Tending to work in water-tight compartments, and free from the ordinary, automatic checks of commerce, the buying departments were apt to rush cargoes forward with little attention to regularity of traffic or the capacity of the ports to receive them, and often without adequate notice. They were apt too, especially in respect of rationed foodstuffs, to prefer taking delivery in small quantities direct to the retailer, instead of removing the cargoes promptly to inland storage. The bacon glut of April, May, and June, 1918, was perhaps the most notable example of a tendency that caused continual trouble at the ports. Somewhat similar trouble arose in 1917 at United States ports, where munitions shipments were rushed to the ports faster than the ships could lift them, with the result that railway traffic was blocked right back to the factory, and the ports choked with accumulations. As a result of the consequent delays, the Ministry of Shipping's New York office took charge, in August, 1917, of all railway movements of goods purchased by the British government.

To some extent these new causes of congestion neutralised the effect of the good work done by the port and transit committee; but for that work, the cumulative effect of congestion must have been disastrous. As it was, there was probably no year of the war in which some millions of tons of imports were not shut out as the result of port delays due, in part at least, to avoidable causes.

Port delays, however, were not the only factor tending to prolong the average round voyage, and thus to diminish the number of voyages made. The necessity of deviation to avoid danger areas, and of zig-zagging when danger areas were traversed, added seriously to the time spent at sea. The holding up of outward bound and coastal traffic when submarines were in the immediate neighbourhood of a port, interfered seriously with sailings. By the autumn of 1916 the average length of the round voyage had been so far increased by delays in port and deviation at sea as to reduce, to a dangerous extent, the annual carrying-power of the ships.

The first effect of convoy, at any rate, in the north Atlantic, was, as already mentioned, to increase still further the length of the round voyage. The commercial objections to convoy are, of course, far greater to-day than when trade was carried on by great annual fleets. It involves intermediate voyages from the port of loading to the port of assembly; it involves delays in port while the convoy is collecting; it reduces the speed of the fastest ship in the group to that of the slowest; it complicates, especially in a "ferry-service," such as the north Atlantic, the working of the ports. All this means a slower turn-round, fewer voyages in a given time, a reduction in the imports received. The adoption of the system in the Atlantic was followed by an immediate and striking reduction in the rate of loss; but had the length of the round voyage continued to be what it was in the first few months after the introduction of the system, it is certain that the available tonnage would have proved

inadequate to maintaining, during 1918, the essential requirements of Great Britain and her allies.

That we were saved from disaster was due to the establishment, at the beginning of 1918, of a much closer co-operation between the Admiralty, the Ministry of Shipping, and the shipowners themselves, and especially to the creation of convoy committees at Liverpool, and subsequently at New York and London, whose function it was to obtain for the Admiralty exact and recent information as to the actual sea-speed and capacity of steamers, in order to facilitate their grouping; to communicate to the individual owners the probable dates of arrival; to communicate to the Admiralty the date on which all vessels in port would be ready to sail, and to do everything possible to ensure rapidity of turn-round in port. Thanks to their efforts, to those of the Ministry of Shipping, and to the admirable work of the convoy section at the Admiralty, the turn-round in the Atlantic during 1918 was brought back, not, indeed, to the rapidity of peace, but to what it was in 1916, so that the additional protection provided by the system could now be counted as net gain.

We have seen, however, that, by the beginning of 1918, the available ocean-going tonnage had been reduced by well over 2,000,000 tons since the opening of the unrestricted submarine campaign, and as the war services had to be maintained, so far as possible, unimpaired, and the essential requirements of the allies increased rather than diminished, the great bulk of this loss had to fall on the tonnage engaged in the import service of the United Kingdom. Meanwhile a large block of neutral tonnage, formerly employed in British trade, had been driven away by ill-advised attempts to limit neutral freights, or frightened away by the submarines. How was it, then, that, even with a perfected convoy organisation, it was possible to maintain the minimum essential volume of supplies?

The answer must be found in the Atlantic concentration. The basis of this concentration was the Government's decision, early in 1917, to confine all purchases, so far as possible, to the nearest sources, thus enabling ships to be diverted from the longer to the shorter routes, where they could make a greater number of voyages in the year. All through 1917 and 1918 this concentration grew in intensity; the far Eastern and Australasian services were cut down to a skeleton, the Indian services were depleted, many cross-trades were practically annihilated, in order that ships might be crowded on to the tracks to North America and the Plate.

That the Atlantic concentration made just the difference between defeat and victory there can be no doubt. In no other conditions could the available tonnage have maintained the essential minimum of supplies without the abandonment of a part, at least, of our military effort.

With regard to this achievement, great as it was, three things must be said. First, its necessity arose as the result of previous failures: failure to maintain the output of mercantile tonnage; failure to remove the remediable causes of port congestion, or to bring imports within the

capacity of the available tonnage; failure—whether inevitable or no—to provide shipping with adequate protection until the net cumulative loss brought us within measurable distance of defeat.

Secondly, the price paid has been heavy. Concentration on the Atlantic tracks entailed drastic reduction of services to some of our best markets, with consequent reduction of the export trade and the provision of a strong stimulus to our competitors both in trade and shipping. It left enormous stocks of wheat and meat in Australia and New Zealand which were cleared with difficulty after the war. It entailed a heavy burden of indebtedness to those countries to which purchases were, so far as possible, confined. It added greatly to the difficulty of returning, after the war, to normal conditions of trade.

Thirdly, the Atlantic concentration would have been impossible, at any rate, in its full development, without the intervention of the United States. From the earliest stages of the war the proportion of imports derived from North America had been steadily increasing, and by the beginning of 1917 the difficulty of providing further dollar credits had become acute. But for the credits voted by Congress after the American declaration of war, it is very doubtful whether the purchases in North America on British and allied account could have been maintained even at their previous level; it is certain that they could not have been raised to the level required by the policy of concentration. That policy, while it undoubtedly saved the situation in 1917-18, cannot be regarded either as desirable in itself or as possible, on a large scale, in ordinary war conditions.

Let us now try to sum up, very briefly, what seem to be the outstanding lessons, so far as carrying-power is concerned, of the four years' struggle.

In the first place, the war has demonstrated, beyond all former experience or expectation, the vital importance of carrying-power to the actual conduct of war. The enormous size of modern armies and the extraordinary development of war material, have multiplied many times the tonnage required for the conduct of oversea operations, and involve the necessity of immense imports of munitions and equipment, and of the material therefor. They have accentuated, also, both by the increased volume of military supplies and by the dislocation of labour, the importance of imported food and feeding stuffs.

Secondly, the elements of carrying-power have become far more complex than in the past. The number and tonnage of ships available, though still vitally important, have ceased to be practically the only consideration. At least equally important is the part played by the docks, quays, wharves, railways, cables and shipping offices, by the whole driving power of the whole commercial organisation, in securing prompt loading and rapid discharge, accurate adjustment of services to demands, regularity of sailings, and quick turn-round.

From this it follows that our aim should be to interfere as little as

possible with the working of the commercial machine. Interference there must be, for the demands of the fighting service on man-power, tonnage and material have to be met up to the full extent of our capacity. The effect of this inevitable interference can, however, be minimised by care and forethought: by framing our war plans with some regard to the capacity of our resources for production and transport, by obtaining practical, expert assistance in the handling of naval and military traffic, and by consultation with those actually engaged in shipping and commerce as to the methods by which military demands may be fulfilled and trade protected with the least possible dislocation of the machinery of supply.

The question of state control of shipping in time of war has purposely been avoided in this article, partly because it could not fairly be discussed without running to an impossible length; partly because the chief points here emphasised—the adjustment of demands to resources, the replacement of losses, the vital importance of quick turn-round—are of fundamental importance; whether control be judged necessary or superfluous, they can be neglected only at great peril. In relation to them any proposals for control must be judged.

The earlier methods of control adopted during the war, inspired, as they were, by an excessive preoccupation with the problem of freights *per se*, failed to deal adequately with the evils of port congestion, wasteful use of requisitioned tonnage, and diminished output, which lay at the root not only of the freight problem itself, but of the far more serious threat to the maintenance of essential supplies. By a strange irony, the remedies proposed by the shipowners themselves were never fully adopted until after the institution of those more drastic measures of control which, in the opinion of many good judges, would have been rendered unnecessary by their earlier adoption.

It is pertinent to observe that much of the valuable work done by the Ministry of Shipping was devoted to providing a substitute, in the management of requisitioned tonnage and the handling of government traffic, for the commercial machinery that had been displaced, and that so late as 1918 it was necessary for the allied maritime transport council to impress on the French authorities the elementary fact that tonnage required for the carriage of steel and oats could best be utilised by mixing dead weight and measurement cargo in the same vessel. It may also be noted that state intervention was generally most successful when the fullest use was made of existing commercial organisations. The state insurance scheme, which saved shipping from paralysis at the outset of the war, was based on a working partnership between the state and the great war risks associations. The successful working of the so-called liner requisition scheme, which was the pivot of the Atlantic concentration, depended absolutely on the part played by the conference committees and the driving power of the individual lines. The perfecting of the convoy system was the result of close co-operation between the ministry, the Admiralty, and the shipowners, through the medium of the port convoy committees.

Two things are fundamental. In the first place, those in authority must have a clear idea of the character and extent of our resources. A great part of the dislocation at the ports might have been avoided, without prejudice to the fulfilment of naval and military requirements, had the investigation into port facilities, begun by the Committee of Imperial Defence before the war, been carried to a conclusion. Failure to appreciate the limited extent of our ocean-going tonnage was responsible for the blindness so long displayed to the urgency of every question affecting carrying-power. A gross overestimate of the number of voyages to be protected delayed the introduction of convoy.

In the second place, the problem of carrying-power, in war as in peace, must be considered as a whole. Purchase, finance, sea-transport and distribution are too intimately connected to be divided into watertight compartments. Any attempt to deal separately with one phase of the problem is bound to have reactions on all the rest which, if not foreseen and provided for, may be disastrous in their results. This, so far as seaborne trade is concerned, is the outstanding lesson of the war. It is also, perhaps, the one that has been least appreciated.



DISTANT CONTROL.

By LIEUTENANT-COMMANDER G. C. STEELE, V.C., R.N.,
F.R.G.S., F.R.Met.Soc.

PRELIMINARY.—Distant control is the term given to the application of wireless telegraphy, whereby the movements of one vessel are controlled from another some distance away.

It has only been made possible by the refinements introduced in wireless telegraphy by the introduction of the thermionic valve in quite recent years.

Electric power is previously installed in the ship to be controlled. Relay switches are set in operation by the action of wireless telegraphy; these supply current to electric motors which work the controlling gear of large machinery.

The special feature of the system is, of course, that this mechanical control takes the place of human control and thereby dispenses with the crew of the ship.

Being an application of a comparatively recent invention, wireless telegraphy, it would appear a difficult task to find any forerunner to distant control, but we are nevertheless able to recognise a certain evolution in material which led up to it.

As far back as the fireship we have an example of a crewless ship being used as a weapon. Soon after mechanical propulsion had succeeded wind as a motive power for ships the torpedo appeared. It contained its own power, but is analogous to the fireship in having to be first brought to a favourable position with respect to the enemy and then started off on the correct course.

The torpedo marked the evolution to mechanical propulsion and automatic control of the weapon, for the fireship made use of current or drift only. Both the torpedo and the fireship have the common property that, once started off on their run, no adjustments can be afterwards made; they are not, therefore, controlled weapons in the strict sense of the word.

A true distant controlled weapon was made by the Germans in 1917. An electrically driven motor-boat, carrying a large quantity of high explosive, was connected to the shore by a long span of multi-core electric cable which unwound itself from a wheel as the boat proceeded. By this means the boat was controlled from the shore and conned to hit a target at sea. The explosive charge detonated on contact. A British monitor operating off the Belgian coast was actually hit, but, due to her protective blistering, no vital damage was done.

Technically, this class of weapon is known as an "electrically controlled boat" (E.C.B.); nevertheless, it is a true case of distant control; the medium of the electric cable does not disqualify it under the definition.

Distant control by wireless telegraphy, to which the term "distant control" is now restricted, marked the great step whereby action at a distance was obtained without any connecting link.

Captain Ryar had a wireless distant controlled boat running at Hawkcraig in 1917, and subsequent developments were at first based on his work. At the present time it can be stated that distant control is out of the experimental stage, except that all W/T and electrical gear is subject to improvement by further experiment.

In this article I shall consider the future possibilities of distant control applied to sea, land and air warfare; the weapons and arms it may create; its influence and probable development.

With distant control as an adjunct in war, it will be seen that the problems it introduces in the three services are closely correlated.

As regards *matériel*, there will be a tendency for the new distantly-controlled weapons to merge into "that which moves the weapon"—the carrier or vessel. Some logical distinction between the two which applies equally to sea, land and air, is therefore necessary.

For purposes of distant control, I shall define the "weapon" as the fixed combination of the explosive and its mechanical carrier; it acts direct and is totally destroyed in the act.

The "vessel" or "ship," on the other hand, conveys the explosive to a position near the enemy and then releases or launches it to complete the work independently; it thereby acts indirectly, or performs the operation in two steps and is not necessarily destroyed in the act.

The weapon hits—or misses. The vessel attacks. Actual size is no criterion, because distant control may evolve a weapon larger than the vessel. An example is the motor-boat carrying a quantity of explosive designed to detonate on the boat making contact with the target. In this case we are dealing with a weapon. But a similar sized boat, distantly controlled to run into position and then to fire a torpedo, retains its class as a boat.

I shall now proceed to discuss the future possibilities of distant control:—

AT SEA.

I. WEAPONS: (a) *Distant controlled torpedo*.—The value of such a weapon would lie in the fact that the ordinary torpedo can be countered by avoiding it—either by a large alteration of course when a torpedo attack is in progress or suspected, or at any time by zigzagging. If any uncalculated movement of the target takes place after the torpedo has left the tube, it will generally result in a miss. Whereas if an alteration of course could be transmitted to the torpedo by distant control during the run, compensation might be made for any such movement on the part of the enemy; with the result that there would still be a chance of obtaining a hit.

About two years ago a civilian constructed what he claimed to be a distantly controlled torpedo. Publicity was given to this invention. The torpedo carried a mast and small aerial above water; it ran at a slow speed on a lake.

From a naval standpoint this design had fundamental drawbacks.

A torpedo carrying anything in the shape of a mast above water would immediately lose its stream line; this would cause bad running at any save the slowest speed.

High speed would then have to be sacrificed for distant control, a very doubtful advantage, if an advantage at all. Furthermore, the d.c. torpedo would betray its approach by the mast leaving a wake so that the enormous advantage of the invisible track of the modern "heater" torpedo would disappear.

From these considerations it is safe to assume that there is no future for the d.c. torpedo unless under water wireless transmission is used and the torpedo allowed to retain its stream line; in which case the chief difficulty would disappear.

Under-water wireless control is the basis, then, on which this weapon may develop, and the time when this will take place will depend on the progress made in that branch of wireless telegraphy.

(b) *Distantly controlled "devastator."*—I am using the name of a hitherto untried weapon. It will be better recognised as "the one-man submarine." Both the title and the design of the weapon were suggested before the war by a distinguished naval officer.¹

Briefly, it is a miniature submarine driven by battery power only and carrying a very large charge of high explosive. A single man would control it to within a very short distance of the target, when he would abandon it in a life-saving device and leave it to complete the run by itself and detonate on striking the target.

Though the inventor volunteered his own services for working it, the idea was not adopted. It shared the drawback of all others of its kind—a psychological one: that a demand such as the "devastator" made on its operator was too much to make on any one human being.

Now that it is possible for distant control to take the place of human control, the chief objection seems removed. Will a place be found for it in modern warfare? Unlike the torpedo, it is a slow moving vessel, so a small spar appearing above water would not upset its stability. It may be a workable proposition, but the utility of it is doubtful. The latter resolves itself into an old problem—the limitations of size of weapons. Is there any advantage to be gained by controlling one large mass of explosive, when, say, four torpedoes might be fired under similar conditions and from the same carrier? It really corresponds to firing one big round instead of a salvo of smaller calibre, when the chances of hitting, which we shall see later, are just about equal for each round.

In a fleet action, therefore, it is extremely unlikely that the "devastator" type of weapon will ever be considered seriously, though there

¹ Comdr. G. Herbert, D.S.O., R.N. (retd.)

still may be a limited use for it outside, against harbour defences of a solid nature.

(c) *Distantly controlled explosive-filled motor-boat.*—We are now dealing with a surface craft, but it is none the less a weapon, for the explosive charge is a fixture in the boat. As the craft will be plainly visible in the daytime, it could only obtain a hit by a great superiority of speed over the ship attacked and it must furthermore rely on its high speed to avoid not being destroyed by gunfire before obtaining its hit. The "coastal motor-boat" class would seem the most suitable to employ for this purpose. Distant control is made easier in surface craft, for the weapon can be controlled by sight as opposed to calculation, which must be used when it is not visible.

II. SHIPS: (a) *Distantly controlled torpedo-carrier.*¹—If we are able to distantly control a small fast craft to hit a target, it is only a matter of detail of the same system to work a torpedo-firing arrangement when the boat has been manœuvred into a certain position. By so doing, we distinctly control the armament as well as the boat.

There are intrinsic difficulties, however, in such a procedure, inasmuch as, even at close torpedo range, correct deflection has to be allowed for, and the sight must be accurately on the target at the moment of firing. A slight yaw at the critical moment would be sufficient to throw the torpedo off the mark.

A sufficient degree of accuracy for torpedo fire could never be attained by distant control on a moveable target.

There seems little to be gained, too, by controlling the carrier to within a short distance of the target and then to fire a torpedo, when the operation could be performed direct by using the carrier as the weapon, as we do in the case of the explosive-filled motor-boat. Nor would the ship attacked experience much greater difficulty in avoiding a torpedo she knew had been fired than avoiding the high speed carrier itself. From a point of view of economy, too, the carrier, if a C.M.B., would not be of much greater cost than the torpedo.

(b) *Distantly controlled mine-layers.*—We are confronted with a different problem when we consider a d.c. mine-layer. She has merely to be distantly controlled to a certain position and then a mine release worked at intervals. None of the accuracies of aiming, essential to gun or torpedo fire, are necessary. So the proposition may be said to offer greater prospects.

(c) *Distantly controlled gas or smoke carriers.*—Present a precisely similar problem to the mine-layer. Position, as distinguished from aim, is all that is required; a gas release in this case being set in operation when the carrier has reached her position.

(d) *Distantly controlled ship of war.*—Lastly, we come to the big ship.

¹ I have purposely used the word "carrier" to avoid confusion with "torpedo-boat," a special class.

Is there any possibility of her being conned and fought by distant control in lieu of a crew?

It was made public in 1921 that the U.S.S. "Iowa" was controlled by means of wireless telegraphy from another ship stationed five miles astern. Actually she was used as a target ship for aeroplane bombing; nevertheless, the fact remains, that a battleship steamed and was conned without a crew.

Another instance is the battleship "Agamemnon," of our navy, used as a fleet target ship at the present time.

It is surely only a matter of development for the controlling ship to be placed fifty miles away and it is now conceivable that a gun armament could be also distantly controlled. We must also allow that a special type of warship could be constructed; small, as it requires no living spaces, and very heavily armoured.

Will this come to pass? The idea is attractive and would certainly form good subject-matter for fiction. Two fleets, each distantly controlled from, say, the respective capital of a belligerent, to fight and manœuvre, would be grotesquely like a game of chess.

The most cursory reflection will show that such a revolution in naval warfare is impossible. In practice all the objections we found in the d.c. torpedo carrier would be greatly magnified in a hypothetical distantly-controlled battleship, with her primary big gun armament; firstly, by reason of long range; secondly, due to the intricacy of working the guns by distant control. In a fleet action it is unlikely that a single hit would be registered, so poor would be the standard of distant controlled gunnery.

It is quite safe to assume that for fleet purposes the d.c. battleship will only retain the minor peace-time rôle of target ship.

ON LAND.

I. WEAPON: *Distantly-controlled explosive-filled tank.* — In land warfare, objects for artillery fire are generally so lacking in definition and the intervening ground may contain so many obstacles, that if we wished to emulate torpedo warfare at sea, and, without a driver, a vehicle filled with explosives start off from one side, it would have very little chance of reaching an objective, even if unmolested on the way.

There is, therefore, on land nothing to correspond to the torpedo.

If, however, the same vehicle could be kept in view and distantly controlled all along the route and then be made to explode when it has reached its objective—it is possible that a useful weapon may be evolved. The tank suggests itself most readily for this purpose. It could be given high speed, heavy armour, or a compromise of both; numerous targets could be enumerated for its use, such as strong points, batteries and, more distantly, hangars, aerodromes, railway junctions, dépôts, headquarters.

II. SHIPS: (a) *Distantly-controlled landship* (tank with gun

armament).—This corresponds to the capital ship at sea; the objections raised against the latter apply equally to the former.

Unevenness of ground, deviation from course and inaccuracy of position would render distant controlled gunfire as ineffectual from a tank, as the movement of a ship would render it ineffectual at sea.

The capital ship on land, as at sea, must then for ever retain its crew.

(b) *Distantly-controlled gas or smoke tank.*—This must come in the category of weapon-carriers, which, for want of a better word, I have termed "ships."

Given distant control, the proposition of a gas tank on shore is identical to that of the gas-carrier at sea. It could be distantly controlled as regards taking up its position in the enemy lines, a gas release being then worked. A limited use for it could be found when the wind was unfavourable for drifting gas and reasons existed for not firing gas shells.

IN AIR WARFARE.

I. WEAPON: *Distantly-controlled explosive-filled aeroplane.*—A small aeroplane, containing a large explosive charge in its head, which would detonate on striking anything—would constitute the torpedo of the air. Allow the same to be distantly controlled, and what would be the function of such a weapon?

The aeroplane has freedom of movement in three planes, so that for one aeroplane to torpedo another would be practically impossible, even allowing for distant control. And anyhow it would not be an economical way of destroying an aeroplane, which is quite vulnerable enough to gunfire. On the other hand, when we deal with the comparatively slow moving, steady, dirigible airship, offering a large target, it seems just feasible that it may be dealt with by such a weapon. So much for aircraft against aircraft. Aeroplane attack on land and sea objectives presents another aspect.

With the small exception of dropping depth charges over submarines, by surface craft—bomb-dropping is peculiar to air warfare; the facilities it affords dispenses to a great extent with the need for a mechanically-propelled explosive charge. At the same time we can foresee a limited use for distant control.

Following on the lines of argument in its favour, viz., to bring a large explosive charge in contact with the enemy without exposing oneself to exceptional risk: it is evident that long range can be attained more easily in a horizontal than a vertical plane.

The high altitude record from which a bomb could be dropped is small compared to the horizontal range at low altitude from which the torpedo-aeroplane might be distantly controlled.

It must not, however, be concluded that aerial bombing will ever be superseded in this way. Distant control here, as elsewhere, always presupposes the exceptional conditions or the special operation. Under

normal conditions there is nothing to indicate that accurate bomb-dropping at medium altitudes will ever give place to other methods of attack.

II. SHIPS: (a) *Distantly-controlled torpedo-carrying aeroplane.*—Here we have one aeroplane, distantly controlled from another, or from a station, carrying out a torpedo attack at sea.

Aiming as it does below the water line, the torpedo is the most deadly weapon that aircraft can employ against surface craft.

There is an inherent weakness in an aeroplane for directly carrying out a torpedo attack, inasmuch as she must fly low and thus offer herself a good target; she can also be both seen and heard.

The indirect method of torpedo attack which distant control opens seems a partial solution and as such may find a permanent place in air warfare.

(b) *Distantly controlled bomb-carrier.*—An aeroplane, distantly controlled to drop bombs, would gain a slight advantage in being able to fly lower over the objective; but it would lose in not being able to use sights. The balance would not be in its favour.

(c) *Distantly controlled fighting machine.*—The skill required for handling and fighting in three degrees of freedom are of such a nature that distant control can never be substituted for the crew, where gunnery of the air is involved

Methods of control.—The *visual* method, where the controlling station actually keeps the weapons in sight and regulates the latter's course and speed to attack or hit the target. This method corresponds to "spotting" in gunnery. It undoubtedly is the most accurate method, so would naturally be used whenever possible.

As the primary object of distant control is to keep the human element at a safe range from the enemy, the distance of the controlling station from the weapon controlled should be as great as possible.

In clear weather the aeroplane possesses the greatest range of visibility; it is also possible for it to conduct the control from a position vertically over the weapon, whenever there is any advantage to be derived from this. The aeroplane also offers a small target at long ranges, and is, furthermore, an economical weapon.

From all these considerations we may presume that at sea, on shore and in the air, distant control will be conducted from aeroplanes and that the visual method will be used whenever the weapon or ship is visible.

Calculation method.—There will be many occasions in which we cannot observe the weapon controlled. For instance, if any distantly controlled craft was used by night, or at any time a distantly controlled under-water weapon was used. At the same time we must allow that the target, being a larger object than the weapon, can be observed.

Distant control can only be applied on the knowledge obtained from plot or calculation of the relative positions of target and weapon at any instant.

There would appear a certain increase of range gained by this method, because we are only dependent on the target being visible; but this advantage is more than counterbalanced by the inaccuracies introduced.

In distant control by calculation an aeroplane would not be the most desirable station in which to work out an elaborate plot; at the same time long visibility is still necessary to observe the movements of the enemy.

I do not think it would ever be possible to conduct the whole distantly controlled operation on calculation alone after first obtaining the enemy's position by directional-wireless or other means.

Counter-action.—There is no lack of defensive measures which may be taken by the ship or objective attacked.

If the target is a mobile one, it can employ tactics to avoid the d.c. weapon when it is visible, so long as it has the necessary speed.

All the time, the object of attack is able to use gunfire in the endeavour to destroy the distantly controlled attacker before the attack is brought home.

The controlling station itself presents an additional target, and if any part of this sensitive double target is hit, the d.c. attack should be rendered abortive.

Finally, as is often the case with many a new weapon, it carries its own remedy. Distant control is not exempt in this respect. By using her own wireless telegraphy, the ship or object attacked may be able to divert the attack, and, in the extreme case, turn the d.c. weapon back upon its employers.

Possibilities and limitations.—The greatest question which arises in connection with distant control is, Will warfare itself in the far future become distantly controlled?

The answer can be determined much more easily by investigating what is to be gained by a distantly controlled battle, than by speculating on the technical possibilities.

Firstly, there is the humanitarian aspect, a purely idealistic one, that if each side exclusively used distant control the battle would be a bloodless one. Such would have to be strictly limited warfare, between ships at sea, tanks on land and between aircraft.

If one belligerent broke the rules by placing just a single human being in the distantly controlled force, such an act should be quite sufficient to turn the scales of victory to that side, however much the future may perfect distant control.

It would really be easier to abolish war altogether than to legislate for its conduct on distant control lines.

From a technical point of view, is there anything to be gained in replacing human control by electrical control? The latter is much more delicate. Mere shock is sufficient to upset the instruments.

If any part of the system is thrown out, it will remain so and in most cases will affect the whole working. The protection necessary to protect

the d.c. sets in capital ships would be more than adequate to protect the crew.

It can now be appreciated that, quite independently of the question whether capital ships could be constructed for distant control, there would simply be no conceivable object in bringing it into practice, and it can, therefore, be safely pronounced that warfare of the future will never become distantly controlled.

However, if we satisfy ourselves with smaller issues, and allow reasonable progress in the application of distant control, we see that in the weapons and arms it may produce it forms a curious link between the three services. We can connote the functions of the prospective d.c. torpedo, explosive-filled tank and "torpedo-aeroplane"; the torpedo carriers of sea and air are analogous, as are the gas carriers of sea and land. The objections raised against the capital ship apply equally to each service.

In the fleet action, as in the field, there is a difficulty of bringing our weapons up into action; this detracts considerably from their value.

In no case do we seem to attain a definite long range of safety for the *personnel*, for we are limited by the range of vision of the controlling station.

At sea, the perfection of the torpedo; its high speed at short range and its invisible approach make a complication of distant control rather superfluous for a similar class of weapon.

On land we confine the use of distant control to that branch which most closely assimilates to naval warfare—the tank, but at the present time a battle on land is not necessarily a battle of tanks, despite the important part they play. Nor would the introduction of distant control revolutionise tank warfare. Therefore the direct influence on land warfare must be small.

In air warfare we have relegated its use to special weapons.

We are now in a position to generalise the influence of distant control in all forms of warfare. It is a weapon of opportunity; a weapon to be used in special circumstances only. These special circumstances are found whenever an attack or operation necessitates such close proximity to the enemy as to render the position of the human element untenable. We can then substitute distant control with advantage. Let us elaborate this point and take examples.

It is not the practice to-day to order men to undertake an enterprise if their chances of escape are practically negligible. If it is imperative that a certain raid must be carried out which entails great personal risk to the attackers, that risk must be diminished by every means at disposal; usually in the form of large supporting or rescue forces, in a strength out of all proportion to the actual attacking force. The supporting force must be brought up as close as possible to the theatre of operations to be effective. This entails risk. Does distant control alter this? In so far as it enables us to use our attacking force

to destruction it does; for supporting and rescue forces become unnecessary and a distant controlling station takes their place.

Take a concrete case in the late war. In the Cuxhaven raid, Christmas Day, 1917, seaplanes were transported over to Heligoland bight in carriers under support of light cruisers and destroyers. We were prepared to sacrifice the seaplanes after the raid, but not the crews; consequently, a rescue force in the shape of a submarine flotilla took up positions right off the enemy coast with orders to take the pilots off the planes after they had alighted. The machines were then to be destroyed. The destroyers and light cruisers would support all the while. Had distant control been in vogue, it is conceivable that the whole raid might have been conducted from a single distant control station, and the risk of the light forces rendered unnecessary. Also the planes, which suffered from petrol shortage, would not have to make allowance for retreat, so could use all their resources for offensive action. The raid on Kronstadt harbour is another good illustration. Distant control would have relieved the Kronstadt raid of the preliminary diversion by aeroplanes; and the support of cruisers and destroyers on the edge of the minefield, which were all features of the plan, would not have been necessary.

Again, how would distant control have simplified the Zeebrugge operation? Take one incident—the placing of the submarine filled with explosive in a position alongside the mole, the evacuation of her crew and subsequent explosion. Could this have been performed in one act by a d.c. explosive-filled submarine and both time and great personal risk been spared?

This suggests an even greater possibility—that of distantly controlling into position the actual blockships themselves. The whole operation, with its many component parts, might then be reduced to a single direct feat.

If there is one case more than another in which we must use a vessel to destruction, it is the case of the blockship, and the position of her crew may be always regarded as untenable.

The need for distant control is here most imperative, for unless you accept the extraordinary measure of sacrificing the crew—diversion, support and rescue on the largest scale must be provided for, from the very nature of such operations.

Whilst on the subject, we are presented with a possible counterpart on land to the blockship at sea. Why not a "blocktank"? There might be several uses for a huge concrete-filled tank which could automatically disable itself when in the required position. Take, for example, obstruction to transport by blocking a route or pass; or, conversely, it might be despatched out ahead to assist advance by bridging a river or gully.

The rôle of a blockship or "blocktank" is a purely passive one, and as such, it is admirably suited for distant control.

To sum up: distant control is a very poor substitute for human control; nor does it altogether dispense with the latter, it merely transfers

it back to the controlling station. In this position the crew is much less able to deal with the contingencies of the attack than would men on the spot.

Distant control applies only to operations involving close proximity to the enemy; these are of the nature of torpedo, mining, bombing or blocking; but under normal conditions these operations can be conducted more effectively, and without extraordinary risk, by the means existing at present, without the aid of distant control.

The function of distant control is confined solely to the special operation which does not appear in any recognised class of operation; the exceptional condition being that in which the attacking vessels must be used to destruction.

The novelty and inevitable moral effect of distant controlled weapons must not be lost sight of.

Defence against applied distant control is not difficult; the element of surprise must, therefore, be made use of in conjunction with it

Because it is a weapon of opportunity, we must be keenly sensible of its possibilities, both for attack and for defence against its employment in enemy hands; but we must also appreciate its limitations, so as not to be unduly influenced by a new invention.



NAVAL NOTES.

GREAT BRITAIN.

FLAG COMMAND CHANGES.

In May vice admiral sir Allan F. Everett, K.C.M.G., K.C.V.O., was appointed to succeed sir Arthur C. Leveson, K.C.B., in command of the China station; the appointment takes effect from 10th September.

On 23rd May rear-admiral A. G. Hotham, C.B., C.M.G., was appointed director of naval intelligence, in succession to rear-admiral M. S. FitzMaurice, C.B., C.M.G.

On 18th June rear-admiral A. K. Waistell, C.B., was appointed rear-admiral commanding first light cruiser squadron in succession to rear-admiral the Hon. Sir Hubert Brand, K.C.M.G., K.C.V.O., C.B.

On the same date rear-admiral F. C. Dreyer, C.B., C.B.E., was appointed a lord commissioner of the Admiralty and assistant chief to the naval staff, in succession to rear-admiral A. K. Waistell, C.B.

On 24th March, Mr. E. A. Pearce, O.B.E., deputy director of dockyards, was appointed director of warship production, in succession to Mr. W. S. Berry, C.B.

OBITUARY.

On 20th June, captain sir Francis Blackwood, Bart., one of the oldest captains in the navy, died at Chelsea. He was the grandson of admiral the hon. sir Henry Blackwood, the friend and colleague of Nelson, who commanded the "Euryalus" at Trafalgar.

ATLANTIC FLEET.

In April the battleship "Ramillies," in the second division of the first battle squadron, was replaced in the Atlantic fleet by her sister ship the "Royal Oak." The second division is thus composed of the "Revenge" (flag of R.A.), "Royal Oak," "Resolution" and "Royal Sovereign." At about the same time the light cruiser "Cambrian" was replaced by the "Canterbury" in the second light cruiser squadron, which is now composed of the "Curaçoa" (flag), "Caledon," "Canterbury," "Carysfort" and "Castor."

During the first week in April, the fleet returned to its home ports to give spring leave, and on 14th May assembled at its northern bases as follows:—

At Invergordon. (14th May to 2nd June). The first battle squadron, the ninth flotilla, and the first submarine flotilla.

At the Firth of Forth, (14th May to 2nd June). The first and sixth flotillas and the second submarine flotilla.

After carrying out gunnery and torpedo practices the fleet sailed for the second part of its summer programme and visited various ports and watering-places on the coasts of England and Scotland.

CRUISES IN THE BALTIC.

The 2nd light cruiser squadron, 9th destroyer flotilla and 1st submarine flotilla cruised in the Baltic from 7th–27th June, visiting Helsingfors, Riga, Reval and Hango. On leaving Hango visits were paid to Scandinavian ports. The

2nd light cruiser squadron arrived at Christiania on 21st June, the 9th flotilla at Stockholm, and the 1st submarine flotilla at Copenhagen on 19th June. All the ships leave on 26th or 27th to return to England.

THE EMPIRE CRUISE.

During the quarter the special service squadron continued its cruise and paid the following visits :—

Port of call.	Arrival.	Departure	Ships concerned.
Hobart	March 27th...	April 3rd ...	All ships.
Jervis bay	April 5th ...	" 8th ...	" "
Sydney	" 12th ...	" 23rd ...	Battle cruisers.
	" 12th ...	" 15th ...	Light cruisers.
Brisbane	" 17th ...	" 25th ...	" "
Lyttleton	May 1st ...	May 8th ...	" "
Wellington	April 27th ...	" " ...	Battle cruisers.
Auckland	May 10th ...	" 17th ...	All ships.
Fiji	" 21st ...	" 27th ...	" "
Honolulu	June 6th ...	June 12th ...	" "
Victoria, B.C.	" 21st ...	" 25th ...	Battle cruisers.
Esquimalt	" 21st ...	" " ...	Light cruisers.
Vancouver	" 25th ...	" " ...	Battle cruisers.

CHINA.

During May the squadron remained at its base.

The light cruiser " Carlisle " has completed her refit at Hong Kong.

The light cruiser " Durban " and submarine " L.20 " of the China squadron, which have been carrying out exercises at Colombo and Trincomali for about two months, left Ceylon early in June for Hong Kong.

EAST INDIES.

In April the light cruisers " Cairo " and " Colombo " cruised to east Africa, and visited Diego Garcia, Rodriguez, Mauritius, Kilwa Kisiwani, Dar-es-Salaam, Mombasa, Zanzibar and Kisimayu.

The " Chatham " is *en route* for Colombo, where she will relieve the " Southampton " on 8th July, as flagship of rear-admiral H. W. Richmond, C.B., commander-in-chief of the station.

The " Southampton " left Trincomali for Colombo early in May.

SOUTH AFRICA.

The sloop " Wallflower " is on a three months' cruise up the east coast of Africa. All the other warships on the station were present during the celebrations of the Centenary of Durban, which began on 26th June. The " Birmingham," flagship of rear-admiral sir Rudolf Bentinck, arrived off the town earlier in the month, and will remain till 7th July.

WEST AFRICA.

The "Dwarf" returned to Lagos in April after a visit to the Cameroons, and left at the end of May for a two months' cruise, calling at Loanda, Cape Bras, Lobito, Elephant Bay, San Thomé, Lagos. The "Thistle" returned in April, after refitting at Gibraltar, and left Sierra Leone at the end of May for the Cameroons.

MEDITERRANEAN.

Early in April the battleship "Emperor of India," the light cruiser "Calypso," and the sixth division of destroyers visited Argostoli and Corfu, to take part in the celebrations of the Byron centenary at Missolonghi.

On 24th May the Mediterranean fleet left Malta to cruise for six weeks in the Ægean Sea and Sea of Marmora, visiting Alexandria, Port Said, Lemnos, Phalerum Bay, and Nauplia. The redistribution of ships outlined in the naval estimates will not take place till September, and the fleet at present consists of four battleships, the "Iron Duke," "Emperor of India," "Benbow" and "Marlborough," with the 3rd light cruiser squadron, "Cardiff," "Caradoc," "Calypso," "Ceres," "Concord" and "Cleopatra," and the 3rd and 4th destroyer flotillas. On 12th June the fleet arrived at Cyprus, and remained till 16th, when it left for Lemnos. The flagship, the "Iron Duke," was to have been at Constantinople from 16th to 22nd, but this plan was not carried out.

The light cruiser "Concord" left Devonport on 2nd June to relieve the "Comus" in the Mediterranean Fleet. The "Comus" has been transferred to the Nore Reserve.

NEW ZEALAND.

The sloops "Laburnum" and "Veronica" continued the cruise begun during the closing days of last quarter. The "Laburnum" visited port Fitzroy, Gisborne, Timaru and Lyttleton during April and May.

The "Veronica" called at Milford sound, Bluff, Oamaru and Dunedin.

On 17th May at Auckland the light cruiser "Dunedin" was transferred to the Dominion Government in place of the "Chatham," and hoisted the broad pendant of Commodore A. F. Beal, C.M.G., commanding the New Zealand station. The "Dunedin" made the voyage out with the special service squadron. The "Chatham" left on 27th May for Colombo. The "Dunedin" left Auckland for her first cruise as flagship during June, and will visit the Pacific islands and Australia, arriving at Sydney in September. The sloop "Laburnum" was at Auckland in June, but the "Veronica" had started on a five months' cruise and is not due to return to Auckland until the end of October.

NORTH AMERICA AND WEST INDIES.

Following the visit of the special service squadron to the Pacific coast of Canada, the north American squadron is cruising to ports in Nova Scotia, Newfoundland, and the St. Lawrence. The squadron will be at Bermuda to meet vice-admiral sir James Ferguson, the new commander-in-chief, who left England in the middle of June to succeed vice-admiral sir Michael Culme Seymour.

SUBMARINE SERVICE.

The "K 26" continued the cruise which was referred to in last quarter's JOURNAL, and arrived at Port Said on 29th March. She arrived at Singapore during May, and left for her return journey to Portsmouth on 10th June. She had

been delayed at Malta for over a month for special ventilating devices to be fitted for her passage through the Red sea, and her cruise was afterwards extended to Colombo and Singapore.

The new submarine "L. 24" was completed in the middle of June, and is to relieve the "L. 21" in the 2nd submarine flotilla, Atlantic fleet. She was laid down in May, 1917. Four submarines of the war programme are still incomplete, but two of them are due to be finished early in August and October respectively.

ROYAL MARINES.

Lieutenant-colonel A. G. Little, C.M.G., of the Chatham Division R.M., is appointed director of naval recruiting, in succession to colonel-second-commandant R. H. Morgan, C.B., and took up his new post on 21st June.

ROYAL NAVAL VOLUNTEER RESERVE.

The total number of ratings in the R.N.V.R. is now 5,500. The corps is divided into seven divisions: London, 990 ratings; Bristol, 590; Scotland, 1,364; Sussex, 591; Tyne, 682; Mersey, 682; Ulster, 500.

NEW CONSTRUCTION.

The five new cruisers, which will replace the old county-class cruisers, are also to form a county-class, and will be called the "Kent," "Hampshire," "Suffolk," "Monmouth" and "Berwick."

It has been announced that the Fairfield shipbuilding and engineering company, and Messrs. Vickers are each to build the hull and machinery of one of the new cruisers. Sets of machinery are to be built by the Parsons Steam Turbine Company; by Messrs. R. & W. Hawthorne, Leslie & Co., and by Messrs. Beardmore & Co.

The new cruiser minelayer, "Adventure," was launched at Devonport on 18th June, and was christened by Lady Chelmsford, wife of the First Lord of the Admiralty. The "Adventure" is the first surface vessel of the post-war naval programme to be launched, and the first minelayer built specially for that duty. She is of 7,000 tons, 522 feet long, with a beam of 28 feet—roughly of about the same dimensions as the new cruisers "Enterprise" and "Emerald" now completing afloat.

COLONIAL NAVIES.

AUSTRALIA.

Early in April, the premier of Australia announced that the Australian government intended to build two new cruisers and six submarines. One of the cruisers is to be built in England, and one in Australia. The submarines are all to be built in Great Britain.

The battle cruiser "Australia," which was hall-marked for scrapping under the Washington agreement, was sunk off Sydney during the visit of the special service squadron. The battle cruiser "Hood," the light cruisers "Delhi," "Dauntless," "Melbourne," and "Brisbane" and the flotilla leader "Anzac" were present.

The Australian light cruiser "Adelaide" and the training ship "Encounter" joined the special service squadron on 23rd May to give experience of oversea cruising to their officers and men. The "Adelaide" will accompany the battle cruisers to Portsmouth on their return.

NEW ZEALAND.

On 28th April Mr. Massey, the premier of New Zealand, announced that if the dominion was not required to make a contribution towards Singapore, it would be willing to maintain another cruiser in the Pacific.

MISCELLANEOUS.

The parliamentary paper recording the opinions of the dominion premiers upon the abandonment of the Singapore scheme was published on the last day of the preceding quarter. The ministers of the Irish Free State and Canada declined to offer an opinion; the prime minister for Newfoundland said simply that it would be "unwise not to proceed with Singapore." The opinions of the ministers for the Union of South Africa, New Zealand and Australia were expressed at greater length in the following terms.

(a) South Africa :—"Your proposed statement of policy meets with my wholehearted agreement. Purely on the grounds of naval strategy, Singapore base may be sound proposal, but the authority of the British Empire as the protagonist of the great cause of appeasement and conciliation among the nations must be seriously undermined by it. I welcome the abandonment of the scheme. Proposed base, while technically outside the limits of the Pacific pact made at Washington, would be out of keeping with the spirit of Washington agreement. At a time when we should move forward with clean hands and unchallenged moral authority this would be step backward.

"I would be loth to dissociate myself from the prime ministers of Australia and New Zealand, and I sincerely trust that your action will meet with their acquiescence, not only on grounds stated above, but also because no promise of real security is contained for them in Singapore. For European troubles will probably synchronise with any future tension in the Pacific, and make it out of the question to move the whole or large part of the British navy to Singapore. Even from point of view of their future security the better way is to make the bold move which you propose towards enduring peace conditions."

(b) New Zealand :—"I regret exceedingly that it is not the intention of the government of United Kingdom to proceed with this proposal, which is looked upon as one of the most important connected with the defence of the empire. It has been stated in no uncertain terms by the foremost naval authorities available that, without a properly equipped base, a modern fleet cannot operate, and, in the opinion of these authorities, for the protection of those portions of the empire which are situated in the Pacific and Indian oceans, there is no place so suitable as that which may be provided at Singapore. This matter intensely concerns Australia, India, New Zealand and a number of crown colonies who are looking to present British government to remember that every citizen of the empire and every country of the empire are entitled to protection from possibility of attack by a foreign foe. It is well to remember here that Singapore is intended certainly not for offensive, but for defensive purposes and that no more of a threat would be entailed to Japan by the establishment of a naval base at Singapore than is entailed to the United States of America or any other foreign power by the existence of Gibraltar.

"Last session, the New Zealand parliament, as an earnest of its anxiety that the fortification of Singapore should be proceeded with, voted one hundred thousand pounds, and it will not stop at that. In recent years America has fortified Pearl harbour in the north Pacific, and it is now said by well qualified naval experts to be impregnable, and naval position of America has been strengthened accordingly. The United States of America is, fortunately, a friendly nation, and will remain as such for centuries to come, so far as it is possible to judge, and I hope for all time. Separated from the heart of the empire by thirteen thousand or fourteen thousand miles of sea, we in New Zealand realise what it means to be insufficiently protected. We have not forgotten what was suffered by the royal navy and the British mercantile

marine in the Pacific during the years of the great war, and we had hoped that the lesson taught then would not be so quickly forgotten.

"You say that your government stands for international co-operation through an enlarged and strengthened League of Nations. I feel that I must reply to that by saying that it may turn out to have been a pity that the league was ever brought into being, if the defence of the empire is to depend upon the League of Nations only. The very existence of the empire depends on the imperial navy, and if the navy is to operate successfully in the event of war, it must have suitable bases where repairs may be effected, and from which to work. Malta is nearest suitable base at present, and it is 6,000 miles away, and, therefore, for the purposes of capital ships in either the Pacific or Indian oceans, it is of no value. It has been said by an eminent authority that 'Unless such a base as that contemplated at Singapore is established, it will be an absolute impossibility for the majority of empire capital ships to operate to the eastward of Suez, for the simple reason that they cannot dock either for the purpose of cleaning, and so keeping their speed or of being repaired.' It may also be pointed out that, although the League of Nations is undoubtedly an influence for peace, hostile action as between nations has not so far been prevented by it.

"Owing to the alteration in ship designs since the great war, I may remind you that docks which before 1914 would have taken certain classes of war ships, will not now accommodate ships of similar tonnage, and so the present standard of naval efficiency cannot be maintained without effect being given to the proposals regarding Singapore.

"I protest earnestly on behalf of New Zealand, against the abandonment of the proposal to make Singapore a safe and strong naval station, because I believe that the empire will stand as long as Britain holds the supremacy of the sea, but, if naval supremacy is lost by Britain, the empire may fall, to the detriment of humanity as a whole as well as of its own people, and it is surely the duty of the British parliament and British ministers to see that there will be no danger of such a catastrophe so far as it is humanly possible to prevent it."

(c) Australia :—"We, in Australia, are essentially a peace-loving people, and we have shown that we desire a better understanding among the nations and a definite reduction of armaments on every possible occasion at the meetings of the League of Nations, at the Washington conference, and by our prompt compliance with all resolutions arising therefrom. We are attempting to develop a vast territory with a mere handful of people, and our economic circumstances are those peculiar to every young community in such a position. This impells us to devote as much of our money and energy as possible to permanent re-productive works rather than to armaments, quite apart from our deep-rooted national conviction, intensified by experiences and sacrifices in the late war, that the time has come when mankind should substitute arbitrament of reason for that of force.

"We are in sympathy, therefore, with the great ideals expressed in your telegrams from every standpoint, and we will continue to work for their realisation.

"The methods suggested by you are, however, in the carefully considered view of my government such as will have precisely the opposite effect, and we feel that the prospects of ultimately achieving that aim for which we are all assiduously working, will, in fact, be seriously jeopardised.

"We believe that the existence and prestige of the British empire has been, and is, the greatest factor in the maintenance of the peace of the world.

"To the active support backed by prestige and strength of the British empire has been due the measure of success which has been achieved by the League of Nations since its inception.

" Our strength relative to other great powers has been the basis of the influence for peace which we have wielded in the councils of the nations and through the League of Nations.

" That strength has depended mainly on the British navy, its power and mobility. We are convinced a base in the Pacific is imperative for that mobility.

" The existence and prestige of the empire will be imperilled without it. We believe that such a result would be a menace to the peace of the world and a fatal blow to the League of Nations.

" Your view that confidence must be established, and that this can only be achieved by allaying the international anxieties and suspicions which exist to-day is one in which we also concur. We cannot agree, however, that the establishment of that confidence would be any more hampered by the prudent step of establishing Singapore base for the protection of the empire's trade and possessions in the Pacific than by the other prudent step which your government is undertaking to increase Britain's air forces as a protection against air attack.

" Further, we would point out that it was at the Washington conference, which arose primarily out of Pacific problems, that the greatest contribution yet made to disarmament was effected. At that conference a stage of mutual understanding and trust, remarkable in the circumstances and unprecedented in history, was reached by the nations there represented. This result was achieved in spite of the fact that all the nations represented at the conference knew well that it was Britain's intention to proceed with the construction of the base at Singapore, and that, because of that well-known intention of Britain, Singapore was excluded from the area where fortifications could not be erected.

" The arrangement concluded at Washington for the reduction of armaments was reached notwithstanding the knowledge of Britain's intention to proceed with a prudent measure of self-protection, and my government does not believe that a further reduction of armaments, which all of us so greatly desire, will be prevented by this prudent measure being taken at the present time.

" We think, on the contrary, that, if the proposal, which the highest naval authorities of the empire support as a necessary defensive measure, is abandoned by your Government, incalculable harm will be done to the Empire's prestige, the confidence of smaller nations will be shattered, the ambitions of lesser powers will be increased, and deep distrust will be caused throughout the whole empire. Not by actions having such results as these can we hope to bring about further reductions in armaments.

" Further, unless we have a base in the Pacific, that quota of capital ships permitted by the Washington conference cannot be maintained by Britain in these now important waters.

" That conference never contemplated this eventuality, the occurrence of which would necessarily destroy the influence and power of the British empire in the Pacific to secure further reductions of naval armaments.

" While, therefore, we appreciate your desire to promote a friendly understanding amongst the nations, we do not agree that the carrying out of a programme so long and widely known and so essential to altered circumstances would reflect on your good faith, or that it would jeopardise the establishment of that confidence necessary to success.

" As a more practical contribution to the principles which you have enunciated and with which we cordially agree, we suggest that the construction of the base should be immediately proceeded with, but that, should a suitable opportunity offer itself, the abandonment of the base should be used as a means of reaching an agreement for further mutual reductions of armaments.

"Therefore, on behalf of our commonwealth, which has on every possible occasion proved its loyalty to the empire, we urge you even at this late hour to reconsider your decision.

"The question of the cost of the base has not been referred to by me, because I believe your determination has been reached on the basis of principle, and not of expenditure. But I wish to make it clear that its obligation to contribute towards the cost of the base is recognised by Australia, and it is the intention of my government to submit to parliament, as soon as it meets, proposals for a substantial Australian contribution."

FOREIGN NAVIES.

FINLAND.

NEW CONSTRUCTION.

A Bill has been passed by the Riksdag sanctioning the building of 3 gunboats, 2 destroyers, 6 submarines (2 large, 4 small), 30 motor torpedo boats, 4 auxiliary vessels.

FRANCE.

CHANNEL AND ATLANTIC.

On 31st March vice-admiral Docteur, with the "Diderot" and nine destroyers carried out an interesting combined practice near Lorient. After approaching the coast at night, he effected a surprise landing, which was opposed by vice-admiral Jehenne, who had three battalions of colonial infantry and several batteries of heavy guns under his orders.

BALTIC.

The four destroyers (2nd division of 2nd destroyer flotilla) cruising in the Baltic were received with demonstrations of welcome at Gyndia and Libau. At Riga they arrived in company with the Livonian training ship "Virsatiss," and continued their cruise to Reval and Helsingfors on 27th May.

MEDITERRANEAN.

During the last week in March, the Mediterranean squadron carried out gunnery practices off the Iles d'Hyères.

Combined exercises were also carried out between 10th and 11th April in the Toulon sector. The forces engaged were the Mediterranean squadron and troops from Toulon, Hyères, Marseilles and Fréjus. The object was to study the defence of the coast against an enemy attempting to land in the zone between Lavandon, Bénét and Les Mormettes.

On 6th May the Mediterranean squadron left Toulon for the Gulf of San Juan to carry out fleet exercises. The cruiser "Provence" returned to Marseilles on 12th to embark the minister of marine, who was present at the end of the manœuvres. On 24th May the squadron returned to Toulon to take in supplies before starting on 2nd June for a cruise off Algeria and Tunis, to practise the defence of those coasts. After carrying out target practice off the islet of Vacca (Corsica) on the 19th, the squadron returned to Toulon on 20th June.

NEW MINISTER OF MARINE.

Monsieur Bokanowski was appointed minister of marine in succession to monsieur Raiberti in monsieur Poincaré's reconstructed cabinet.

In M. Herriot's new cabinet, appointed on 14th June, vice-admiral Dumesnil is minister of marine, and M. Meyer, under-secretary for the merchant marine.

NEW CONSTRUCTION.

The two new ships voted by Parliament before the dissolution, to be taken in hand this year, are cruisers of 10,000 tons displacement, the maximum allowed under the Treaty of Washington for ships which are neither battleships nor aircraft-carriers, and a considerable advance on the "Lamotte Picquet" (8,000 tons) which is now being completed.

The principal characteristics of the new cruisers will be as follows :—

Displacement, 10,000 tons; length, 617 feet; beam, 60 feet; draught, 19½ feet; horse-power, 120,000; speed, 34 knots; radius of action, 5,000 miles at 15 knots.

Armament :—Eight 8-in. guns; eight 3-in. anti-aircraft guns; eight 1·6-in. guns; two 21·7-in. torpedo tubes in triple mountings.

The ships will be fitted with geared turbines, and boilers for oil consumption only.

Great attention is being paid to the question of defence against aerial attack, and each cruiser is to carry two aeroplanes which are to be launched by catapults.

Six destroyers ("Bourrasque" class) and two submarines (1,363 tons) are also authorised for immediate construction.

On 21st May the "Primague" was launched at Brest, the third of the 8,000-ton cruisers authorised in the first part of the naval programme of new construction. Her sister ships are the "Duguay-Trouin," launched in April, 1923, and the "Lamotte Picquet," described in the May JOURNAL. Her place on the slip at Brest will be taken by the "Cassard," of 10,000 tons, belonging to the second part of the naval programme. The second cruiser of the same class will be called the "Bouvet," and is to be built at Lorient. The construction of both cruisers will begin on 1st July, and they should be ready for their first official trials by April, 1927.

ITALY.

DISTRIBUTION OF THE FLEET.

There are at present 26 heavy ships, besides smaller vessels, simultaneously in the Atlantic, Pacific, Indian ocean, North sea, Baltic, Black sea, Danube, Red sea, and the seas of China and Japan.

The destroyer "Mirabello" is to cruise for six months in the North sea and the Baltic. She left Brest on 7th May *en route* for the Baltic.

In order to show the Italian flag for the first time up the Yangtse river, the R.N. "Carlotta" will go as far north as the Szechuan province.

Two cruisers, the "San Georgio" and "San Marco," sailed during June for south America, partly as an instructional voyage for naval cadets and partly to "show the flag" and so help the oversea trade of Italy.

NEW CONSTRUCTION.

The naval programme for 1924 includes two light cruisers of 10,000 tons, the "Trento" and "Trieste," ordered from private firms at Leghorn and Trieste. Four destroyers of 1,300 tons, speed 35 knots, have also been ordered, to be built at Sestri Ponente and Fiume. The four minelayers under construction at Castellamare are to be of 594 tons, speed 10 knots, and are to carry one 2-inch gun and 200 mines. Four submarines will be built at Spezia.

JAPAN.

From an official memorandum analysing the navy estimates for the fiscal year of 1924, it appears that 238 million yen (£23,800,000) is to be expended on naval

undertakings, roughly two and a half times as much as is represented in losses suffered through the earthquake, and showing a decrease of about 41 million yen (£4,100,000) compared with the estimates for 1923.

The original programme of auxiliary combatant ships which were to have been completed by 1927 allowed for 26 cruisers, 94 destroyers, and 93 submarines. The new programme allows for a reduction of one cruiser, 13 destroyers, and 24 submarines. The Japanese Foreign Office invites consideration of this point when it is urged by foreign critics that Japan is applying the energy she formerly devoted to the construction of capital ships to an expansion of her auxiliary fleet.

NETHERLANDS.

After the navy bill providing for the expansion of the Dutch navy had been rejected, the Netherlands minister of marine informed the upper house that the government would shortly introduce a new fleet bill, and urged parliament to grant credits for building two flotilla leaders and two destroyers.

The Dutch submarine "K.XI." was launched at Fijenoord, Rotterdam, on 24th April. The K-class, 500-600 tons surface displacement, are designed for service in the Netherlands East Indies.

RUSSIA.

FLEET EXERCISES.

The Soviet government has assigned 6,800 tons of coal to the fleet for its autumn practices, which are to begin on 24th August. The dreadnoughts "Paris-Commune" and "Marat" and a force of about sixteen destroyers and four auxiliaries are to take part in the fleet exercises.

NAVAL PROGRAMME, 1924.

With the opening of the navigation season the usual reports of proposed naval activity have been received, but it is doubtful if any of them will be carried into effect. It is stated that the sum of 50 million roubles has been assigned for the construction and repair of a fleet of war, and that the following ships are to be completed by August, 1924 :—

Baltic Fleet.—3 battleships, 8 light cruisers, 12 destroyers, 10 submarines, and 15 auxiliary vessels, etc.

Black Sea Fleet.—3 cruisers, 3 destroyers, and 3 submarines.

SPAIN.

NEW CONSTRUCTION.

The cruiser "Principe Alfonso," of 7,850 tons, was launched at Ferrol during June.

NORTH AFRICAN SQUADRON.

A decree was issued on 22nd March for the formation of a north African squadron, considered necessary for the co-operation of the army and navy in the Moroccan campaign. It is to consist of 2 cruisers, 4 gunboats, 11 armed trawler and other auxiliaries, under the command of rear-admiral Don Eduardo Guerra y Goyena, who will have his headquarters at Tetuan.

SOUTH AMERICAN STATES.

ARGENTINE AND CHILE.

The establishment for the Argentine navy is 736 officers, 5,800 ratings voluntarily enrolled and 5,450 conscripts. The Chilean naval strength is considerably

less and consists of 614 officers, 5,270 voluntary ratings and 800 conscripts. Revised rates of pay and a plan for speeding up promotion have been laid before the minister for war. Two British officers are at present lent to the Chilean navy as advisers in gunnery and staff training.

BRAZIL.

The Brazilian minister of marine has proposed to build 1 battleship, 33,000 tons; 1 cruiser, 10,000 tons; 5 destroyers, 1,000-2,000 tons; 5 submarines, 800-1,000 tons; 1 aircraft carrier; 10 minelayers, 10 minesweepers, 1 survey ship, 1 mine carrier.

So far as is known at present no building has been begun, but no agreement as to limitation of armament was reached at the Conference at Rome.

SWEDEN.

The Swedish ministry for the marine has recently reported that the ice-breakers available at the Baltic ports would be of very little use in war time, and have advocated the building of a group of armed, state-owned ice-breakers. The ships are to be 242 ft. long and to have a beam of 67 ft. Their draught (whilst ice-breaking) will be 25 ft.; they will develop an I.H.P. of 5,500.

During March and April the Swedish fleet carried out manoeuvres and practices. The following ships took part: "Drottning Victoria" and "Gustav V.," coast defence ships; "Clas Fleming" (mine layer); "Psilander" (torpedo cruiser); 9 torpedo boats, 4 submarines, 5 armed launches.

Further exercises with the whole fleet were carried out in the Baltic in June.

UNITED STATES.

NEW CRUISER DIVISIONS.

On June 15th the light cruisers of the first line were re-organised. Two divisions, of four ships each, are attached to the Scouting Fleet. They are all vessels of the new "Omaha" type (8,500 tons, with twelve 6-inch guns), laid down in 1918-20, and the newest in commission in the navy. The two remaining vessels of the same type, the "Concord" and the "Omaha," are respectively the flagships of the destroyer flotillas of the scouting fleet and the battle fleet.

ENLISTED STRENGTH OF THE U.S. NAVY.

As on 24th April, 1924, the total enlisted strength of the navy was 86,631, or an excess of 631 men over the authorised figure. Since July 1st, 1923, the Navy Department has obtained 20,849 first enlistments; but, after deducting 554 due to under-age and physical disability discharges, the net number of first enlistments was 20,292.

For the week ending 24th April, 1924, there were 918 applicants who presented themselves for enlistment, and of this number 339 were accepted as first enlistments, or a percentage of applicants enlisted of 365. The total number of re-enlistments was 41 and no extensions were granted.

ADMIRAL COONTZ'S REPORT.

After the recent naval manoeuvres admiral Coontz, commander-in-chief of the U.S. Fleet, in his report to the Navy Department, emphasised the importance of modernising the battleships. The other points brought out in admiral Coontz's

report were (i) that the lack of flotilla leaders had been severely felt; (ii) that the breakdown of the four battleships was a very serious matter, and that capital ships could only be made to last for twenty years, as at present intended, by a carefully thought out programme of re-boiling; (iii) that the submarines were in a bad condition and were too slow; (iv) that the "Langley," which was supposed to carry fifty-eight planes, only carried six, and (v) that the wireless installations were defective.

The reply by Mr. Wilbur, the Secretary of the Navy, was published on 22nd May. He said :—

" Comparison of the present fighting strength in ships of Great Britain, America and Japan would appear to be 5-4-3, but this ratio does not consider strategically located naval bases, nor the relative strength of various merchant marines.

" In theory and science of aviation America is equal to Great Britain and France, but is behind Great Britain in plane-carriers.

" On March 31, 1924, the amount of fuel oils in storage would supply the fleet for three and one-tenth months, while the fuel oil in storage is less than ten per cent. of the war requirements for one year.

" Thirteen of our eighteen first-line ships are neither modern nor of the highest efficiency.

" Additional radio equipment is necessary as replacements for obsolete equipment and communication requirements.

" Great Britain is building two battleships, we are building none.

" American ships are not deficient in anti-aircraft batteries and machine guns, but improvement is necessary.

" The navy estimates have each year been larger than the funds allowed by the budget. Therefore the Congressional appropriations are not in accord with the Navy Department's recommendations, but Congress had made even important reductions to the budget recommendations in 1924.

" The only three fleet submarines in the navy finished in 1920-21 have failed to give the performance expected and are now out of commission.

" The entire submarine situation is deplorable.

" In the eastern Pacific America is in first place in the matter of naval bases, and in the western Pacific America is in third place.

" The most important naval base requirement is at Pearl Harbour, Hawaii.

" Eighty-six thousand men, now authorised by law, will not keep in commission the desired number of vessels. Ships in commission are undermanned."

NEW CONSTRUCTION.

A Bill was passed by Congress on 28th May and by the Senate on 5th June, authorising the construction of eight light cruisers and six river gunboats. The sum of \$18,360,000 was voted for the conversion of six battleships from coal burners to oil burners, and for the installation of additional protective devices against submarine and air attacks. The amendment appropriating \$6,500,000 for the elevation of the guns of thirteen battleships was defeated.

As the result of a motion afterwards introduced in the Senate, the bill cannot come into force before the next session, and the construction of the proposed eight cruisers has, therefore, not yet been authorised.

LIMITATION OF ARMAMENTS.

Since the last number of this *Journal* was published further information has been received about the proceedings of the conference of minor naval powers, which

met at Rome in February, invited by the Naval Sub-Commission of the Permanent Advisory Commission of the League of Nations, to consider the question of extending the principles of the Treaty of Washington.

After an exhaustive discussion the Commission—including the representatives of the countries which had been invited, except Turkey, from which state no reply had been received—was unable to agree as to the selection of a standard for calculating the capital ship tonnage to be allotted to the various States. The Commission was accordingly obliged to limit its discussions to the tonnage figures proposed by the various delegations, and a draft convention was drawn up on the lines of the Treaty of Washington, with suggested limitations for each country individually.

Article 4 of the draft convention gives the total capital ship tonnage not to be exceeded by each country represented at the conference, except the Argentine Republic, whose delegate was only present as an observer.

For Brazil : 80,000 tons.

Subject to the reserve made by Brazil that the Argentine accepts the same figure for her maximum tonnage limit.

For Chile : 80,000 tons.

Subject to the reserve made by Chile that the Argentine accepts the same figure for her maximum tonnage limit.

For Denmark : 18,000 tons.

For Greece : 36,000 tons.

Subject to the reserve made by Greece :—

- (1) That Turkey will accept the same tonnage limit.
- (2) That she will scrap the "Kilkis" and the "Limnos" without replacing them, provided that Turkey does not retain the "Sultan Selim."
- (3) That Greece will remain free to increase her tonnage if Turkey proceeds to build or acquire other capital vessels than the "Sultan Selim," "Torgun Reis," and "Idjalieh."

For the Netherlands : 26,550 tons.

For Norway : 16,048 tons.

For Spain : 105,000 tons.

The representatives of the British Empire, France, Italy, the Netherlands, and Norway voted against this proposal. The Belgian, Czechoslovakian and Japanese representatives subsequently stated that they had voted for it under the impression that Spain would not ask for an exception to the application of the naval holiday.

For Sweden : 60,000 tons.

Subject to the reserve made by Sweden that all other riparian states of the Baltic do not exceed the same tonnage in the Baltic and the Arctic. The representatives of the British empire and France abstained from voting.

For Russia : 400,000 tons.

The representatives of the British Empire, France, Italy, Japan and Sweden voted against this proposal. The representatives of Belgium, Czechoslovakia, Denmark, the Netherlands and Norway abstained from voting. The note by the Russian representative is added.

EXTRACTS FROM THE FOREIGN NAVAL PRESS.**FRANCE.**

In the April number of the *Revue des Deux Mondes* rear-admiral Degouy contributed an article entitled "Nos lignes de communications maritimes." The subject had been suggested to him by marshal Foch in the course of an interview. France's most urgent military problem, says the writer, is that of keeping her communications with northern Africa intact, in the teeth of British naval superiority. In 1917, monsieur Lémery and monsieur Simonot, the first an under-secretary of state, the second an eminent naval constructor, reported to the ministers of war and commerce that France could maintain an uninterrupted supply of arms and men from northern Africa by means of submarine transports. French naval experts did not receive the project favourably, and pointed to the increasing rate at which German submarines were being destroyed to support their objections. Admiral Degouy suggests that the whole project should be re-examined in the light of later information. The naval commissions of control in Germany discovered that when the war ended there were 193 submarines under construction in the German yards. They were not completed because Hindenburg made such calls upon the industrial resources of the country for his March offensive. Had the German high command concentrated its efforts upon intensifying submarine warfare, there is no doubt that in 1918 the operating fleet of German submarines would have been twice as strong as it actually was, and it is more than questionable whether the Allies' counter-measures would have dealt successfully with an attack of such intensity. In other words, admiral Degouy does not consider that the allies' successes against the submarine campaign have set up a standard upon which the limitations or power of the submarine weapon can be judged. He therefore considers that the French government ought to study the question of keeping communications between southern France and northern Africa open by means of submarine transports.

According to monsieur Simonot, the naval constructor, it would be possible to design submarines of between 8,000 and 10,000 tons. Vessels of this kind would be capable of carrying 1,000 men and 1,500 tons of material. As the African troops could be very largely supplied and equipped in France, these submarine transports would not need to be encumbered with artillery and munitions. The question of horse transport is more difficult. Admiral Degouy doubts whether submarines could ever carry them, although he believes that methods of oxygenizing and reoxygenizing the air inside submerged vessels are at present very elementary and will make great progress. He concludes, therefore, that communications between France and northern Africa might be continuously maintained, even in the presence of a very powerful hostile fleet, by means of a fleet of 8,000-ton submarines, supplemented by very fast surface transports which could complete most of the voyage by night.

Commandant Thomazi, writing in *Le Yacht* of 24th May, points out that the Ministry of Marine has decided that the two new cruisers to be taken in hand this year must be of the maximum tonnage and armament permitted under the Treaty of Washington, because France cannot be allowed to fall behind other countries in the construction of armed cruisers. Commandant Thomazi argues that cruisers are not only intended to meet other cruisers in battle, and that the adoption of the maximum tonnage for two ships reduces the number of units which could be built at the same expense. In the employment of cruisers number is often a greater advantage than individual strength and size; but he agrees that the strictly limited

estimates for the navy practically forced the hand of the Ministry. Cruisers of 10,000 tons with 8-in. guns are a necessity in view of the action of other countries.

The greater part of the disposable weight in the new ships will be utilised to increase their offensive power, and the weight of their broadsides should be more than double that of the "Lamotte Picquet" (the 8,000-ton cruiser of which details were given in the last number of the *Journal*.)

French engineers have had little experience in building modern warships of great speed, except destroyers. The last light cruisers built in France were the "Cosmao" class, of 1903, of only 2,200 tons displacement and 7,000 horse-power, their speed only 21 knots. Experience with armoured cruisers of a later date cannot be taken into account, as they were battleships rather than cruisers, and it is regrettable that the trials of the "Lamotte Picquet" could not take place before the designs for the new cruisers were finally settled. Therefore it has been necessary to improvise boldly, in the designs for both the 8,000 and 10,000-ton cruisers, making use of the destroyer designs, and of what is known as German cruisers, and of English ships of the "Raleigh" class, of which the displacement, 9,750 tons, is nearly the same as that of the new cruisers. Their horse-power is, however, only 70,000 and their speed 31 knots, against the proposed 120,000 horse-power and speed 34 knots of the new designs, and it is well known that as the maximum speed is approached the coefficient of efficiency varies in a way difficult to foretell with any exactitude.

It will be interesting to see what other countries make of the problem—to get the best possible military efficiency in ships of 10,000 tons with 8-in. guns. The estimated speed varies in each country—Japan gives 33½ knots; England, 34 knots; Italy, 34½ knots; the United States, 35 knots; showing how difficult it is to arrive at any exact conclusion on the subject.

So far, the United States have no vessels of the type yet on the stocks. In England the initial orders have been given, but no actual building has begun. Japan is more advanced; Italy is at the same stage as France.

The one thing certain is that all the different Admiralties agree in attaching very great importance to speed. Is speed, then, to be counted as a weapon? To those who claim that speed is only necessary to get out of range of a more powerful enemy, it can be replied that it is also necessary to overtake a retreating enemy. In attempting to achieve the highest possible speed for these cruisers it is vitally necessary to remember that the corresponding strength must not be sacrificed. It is better to have half a knot less speed with immunity from breakdown. Too often during the war the French light craft suffered from excessive lightness of material, especially in their auxiliary engines; but it is confidently expected that those who are responsible for the new designs will find a means to remedy this defect, which is well known to have been the cause of much trouble in the past.

GERMANY.

In two successive articles in the *Marine Rundschau*, korvetten kapitän von Gadow reviews the political problems of the great powers. As soon as the peace of Versailles was signed, says the writer, Europe and America became aware of a Pacific problem. The Japanese have two difficulties to overcome: first, the country is overpopulated, and the government must find lands which its surplus artisans and cultivators can colonise; and secondly, the Japanese empire lacks raw materials for its industries, and food for its inhabitants. A large proportion of its staple food—rice—has to be imported from India and China; whilst its supplies of iron, coal, oil, copper and rubber would never meet its requirements if it were engaged in war. The natural line of Japanese emigration is towards the south and east.

Being debarred from infiltrating into California by American legislation, the Japanese emigrants will undoubtedly strive to establish themselves in Mexico and the Dutch East Indies; and the government will endeavour to make good its lack of rice and metals by the economic penetration of China. Each one of these aims excites Anglo-Saxon opposition. The Americans are as little inclined to tolerate an Asiatic infiltration of Mexico as of California; and they are as anxious to exploit the Chinese markets as any power in the world. The British dominions view any emigratory movement to the Dutch east Indies with the utmost concern; and the Anglo-Japanese alliance was dissolved under the combined pressure of the Dominion ministers. The writer views the Washington conference as a mere instrument of Anglo-Saxon diplomacy: "the general outcome of these regulations was that Japan saw herself pressed back into the north-western part of the Pacific, and was deprived of any chance of undertaking anything against the dominating power of the Anglo-Saxons, whilst America strengthened her hold over the central zone and England over the southern." The project of building a base at Singapore, though decided on before the Washington treaty, was no more than an item in a general policy.

None the less, the writer does not consider that these rival policies constitute an immediate danger to peace in the far east. The distances are too great for naval operations. The American fleet is separated from the Philippines by a fourteen days' voyage, and the whole route is flanked by islands which could be turned into nests of submarines and aeroplanes. Japan would doubtless seize the Philippines and Guam; but she would have no means of forcing America to sue for peace; and the British could cut off her essential supplies of rice by controlling the eastern trade routes from Singapore. Each side, in fact, has so much to lose that neither is likely to begin.

Turning to American and British policies in the western Atlantic, captain von Gadow considers that the recent manœuvres of the American fleet are most significant. They are based on the assumption that the Panama canal will be attacked from the Atlantic, and they suffice to prove that America has a "Caribbean policy." "During the last years of the war, Americans gave vent to the opinion that European possessions in American waters might be acquired like the Danish colony of St. Thomas in 1917, the places designated being the British colonies in Bermuda, the Bahamas, Jamaica, and English Haiti, and the lesser Antilles: Antigua, Barbados and Trinidad. . . . One can reckon that, in course of time these dying outposts . . . will be sacrificed to the gravitational power of the Monroe doctrine . . . The decision will probably come during a European war, or when other central American states are absorbed into the sovereignty of the United States on her land march towards the canal . . . The whole question will be treated with delicacy, and with the greatest reserve in England: there can be no question of any acute tension."

Captain von Gadow thinks that the American fleet is only equal to the British "on paper." Its lack of battle cruisers and cruisers, and its difficulties in maintaining a long service *personnel* are in no way balanced by its powerful destroyer force.

The writer seems to suggest that the British government used the Washington conference to forward its Mediterranean policy. Before the war the British naval concentration in the North sea had left the Mediterranean to France; but British naval power reappeared at the Dardanelles in 1915, and England never again loosed her hold. France pleaded in vain for a higher naval ratio at the Washington conference and Great Britain's opposition was doubtless due to a desire to dominate the Mediterranean. France's African possessions, the military resources of Algeria, Morocco and Tunis, would make her the first power in the Mediterranean if she

could secure her sea communications between Africa and Marseilles. Captain von Gadow then reviews France's effort to link up her African possessions by railways and road, and to make as homogeneous an empire as can be from Algeria to Dakar. In his opinion, England is opposing the growth of French power in the Mediterranean by developing Gibraltar as an air and flotilla depot, by reinforcing the Mediterranean fleet, by moving the Atlantic fleet from Portland to Gibraltar; and by playing upon the natural reluctance of the Italians and Spaniards to see France predominate at sea.

MILITARY NOTES.

HOME.

Appointments.—The War Office announces that Major-General Sir Willoughby Gwatkin, K.C.M.G., C.B., has been appointed Colonel of the Manchester Regiment, in succession to Major-General Sir Vere Fane, K.C.B., K.C.I.E., deceased.

Royal Artillery organisation.—It has been decided, in connection with the recent reorganisation of the Royal Regiment of Artillery, that the Royal Horse Artillery shall retain its present title, and that the existing titles of "Royal Field Artillery" and "Royal Garrison Artillery" shall be abolished, the title "Royal Artillery" being substituted for all purposes.

Existing brigade and battery letters and numbers will be retained, except in the case of coast batteries and companies; but designations will be altered in the following manner; e.g., 63rd battery, Royal Field Artillery, will become 63rd field battery, Royal Artillery; 81st (H.) battery, Royal Field Artillery, will become 81st field battery, Royal Artillery (How.); 10th brigade ammunition column, Royal Field Artillery, will become 10th field ammunition column, Royal Artillery; 9th (H.) pack battery, Royal Garrison Artillery, will be 9th pack battery, Royal Artillery; No. 2 (Hongkong-Singapore) company, Royal Garrison Artillery, will be 2nd (Hongkong-Singapore) heavy battery, Royal Artillery; No. 180 coast battery, Royal Garrison Artillery (T.A.), will be 180th heavy battery, Royal Artillery (T.A.), and so on.

The future numbers of heavy batteries, Royal Artillery, and the order of precedence of pack, medium and heavy artillery units, the units absorbed into new units and the pre-war units from which they have been formed, are shown in a pamphlet which will shortly be issued.

Commissions in the Royal Corps of Signals and Royal Tank Corps.—The Army Council has decided that the normal method of obtaining commissions in the Royal Corps of Signals will be from the Royal Military Academy, Woolwich, and in the Royal Tank Corps from the Royal Military College, Sandhurst. Accordingly, a definite number of vacancies in these corps will be allotted to cadets passing out from the Royal Military Academy and the Royal Military College in February, 1926.

Special cases of cadets, at present at the Academy and the College, volunteering for appointments in the Royal Corps of Signals and Royal Tank Corps respectively, will, however, continue to be considered on their merits.

Concentration of Machine Gun units.—During April and May this year the Machine Gun platoons of the 1st and 2nd Divisions and the Machine Gun squadrons of the 1st Cavalry Brigade were concentrated at Netheravon—two brigades at a time—and

carried out, under the supervision of the commandant and staff of the Machine Gun School, the battle practice parts of the annual machine gun course.

This is the first time that Vickers' Machine Gun squadrons and platoons have been concentrated in any large number, and the value obtained from the training, both to the officers commanding the units to which the Machine Gun squadrons and platoons belonged, and to the *personnel* of the Machine Gun squadrons and platoons, and also to the staff of the Machine Gun school, was very great.

During the concentration the Larkhill artillery range was placed at the disposal of the commandant, Machine Gun School, so that the squadrons and platoons were able to manœuvre over a large area, and targets had to be engaged on entirely unknown ground.

Next year it is hoped to concentrate in a similar way the Machine Gun squadrons of the 2nd Cavalry Brigade and the Machine Gun platoons of the 3rd and 4th Divisions.

Boys for the Army : New Training Scheme.—The supply of skilled tradesmen for the technical units of the Army being still far short of the ordinary requirements of the service, the War Office is making a vigorous effort to overcome the difficulty by training boys to do the necessary work. Over 700, selected by means of competitive examinations, are already under instruction at Chepstow, Maresfield, Woolwich and other centres, and before September places will be found for some 250 more. Candidates for these additional places must be between the ages of 14 years and 15 years and 4 months on 1st September next, and, in order to qualify, they had to pass an examination in English, arithmetic and general knowledge, which was held on 1st July at various centres throughout the country.

The successful candidates will learn one or other of 30 trades, including those of armourer, artificer, boiler-maker, carpenter and joiner, painter, plumber, electrician, instrument-maker and wireless operator. Their apprenticeship will last normally for 3 years, and as they will be enlisted for a term of 12 years, reckoned from the dates on which they attain the age of 18, they will serve in all for approximately 15 years. During their training they will be maintained by the Army free of cost to their parents or guardians, and, in addition, will receive the rates of pay current at the time of their enlistment.

At present a boy, on joining, gets 7s. a week, and this rises during his training to 12s. 3d. a week, according to the length of his service and the progress he makes.

Territorial Army : Regular Commissions.—Regulations have now been issued respecting the grant of permanent commissions in the Cavalry, Infantry, Royal Tank Corps and Royal Army Service Corps, to officers of the Territorial Army. A maximum of 10 per cent.—approximately 65—of the commissions granted annually may be given to candidates from the Territorial Army who qualify in the final term examination prescribed for the cadets of the senior term of the Royal Military College, Sandhurst. A candidate must be unmarried, and in order to be eligible to attend the examination, must have reached 21 years of age, and not have reached the age of 25 on 1st July—for the June examination, or on 1st January—for the previous December examination. Further, he must be recommended by the officer commanding his unit and by the officer commanding the unit or corps he wishes eventually to join, to which he must have been attached; while he must have served for not less than two years as an officer of the Territorial Army and have completed two annual trainings and the compulsory course of instruction prescribed by the Territorial Army regulations for an officer in the first three years of his service.

Recruiting in the Territorial Army.—The returns of recruiting for the Territorial Army, issued on the 16th June, show that during May, 4,975 men were finally

approved for service, as compared with 3,841 in April and 3,521 in March last. The western command, including the Welsh division and the East and West Lancashire Divisions, headed the list in May, with 1,386 recruits, while the northern command, including the Northumbrian, West Riding and North Midland divisions, was second, with 1,268, and the Scottish command third, with 827. The total number enlisted in all the commands during the eight months ending on 31st May was 22,349; and allowing for the loss of men whose periods of service had expired, the strength of the Territorial Army, exclusive of permanent staff, has increased to 146,358. The distribution of strength is now as under :—

Western command	...	...	...	...	...	32,235
Northern command	...	...	...	...	...	31,963
Scottish command	...	...	...	...	...	22,852
Southern command	...	...	...	...	...	21,497
Eastern command	...	...	...	...	...	20,598
London district	...	...	...	...	...	17,213
Total	...	...	...	...	...	146,358

The numbers still required to complete the peace establishment are 1,741 officers and 32,013 other ranks.

Inspection in Hyde Park.—An inspection of the 47th (2nd London) Division of the Territorial Army was held in Hyde Park at 6 p.m. on 21st June, by the general officer commanding, Major General Sir William Thwaites. The Division contained the 140th, 141st and 142nd infantry brigades, and the inspection provided the London public with the second opportunity since the war of seeing the several battalions composing the three brigades, all of which served in and rendered most distinguished service during the great war, as the roll of the deaths in each testify :—

Princess Louise's Kensington Regiment	...	...	1,190
London Scottish	...	...	2,009
Queen's Westminsters	...	...	1,568
Artists' Rifles	...	...	2,535
Poplar and Stepney Rifles	...	...	865
London Irish Rifles	...	...	1,116
St. Pancras	...	...	1,069
The Queen's Own	...	...	1,061
First Surrey Rifles	...	...	1,077
22nd London Regiment (The Queen's)	...	...	898
23rd London Regiment	...	...	1,185
24th London Regiment (The Queen's)	...	...	994

At the date of the inspection each of the battalions of the 47th Division was still below its peace establishment of 20 officers and 636 other ranks, and recruits are urgently needed. The strength of each of the above named battalions a week prior to the review was as follows :—

Princess Louise's Kensington Regiment	19 officers and 502 other ranks.
London Scottish	15 " 452 "
Queen's Westminsters and Civil Service Rifles	20 " 384 "
Artists' Rifles	20 " 462 "
Poplar and Stepney Rifles	16 " 393 "
London Irish Rifles	16 " 384 "
St. Pancras	20 " 289 "

The Queen's Own,	16 officers and 329 other ranks.			
First Surrey Rifles,	20	"	402	"
22nd London Regiment (The Queen's),	17	"	594	"
23rd London Regiment,	20	"	468	"
24th London Regiment (The Queen's),	16	"	447	"

The Cadet Force.—Amended regulations for the Cadet Force are now being adjusted by the Council of the County Territorial Associations with due regard to the views of the cadet units generally and of the organisations under which they were raised. The administration of the Cadet Force was transferred from the War Office to the Council in November last, and the new regulations have been framed on the general principles that, while the force in each county will be raised and administered by the County Association, the work of the County Associations as a whole will be co-ordinated by the Council. At the same time, it is not proposed that the liberty hitherto enjoyed by Associations in relation to their cadet work should in any way be interfered with. So far as cadet units are concerned, they will be free, as in the past, to seek official recognition or to withdraw after such recognition has been accorded. But all recognised units will be affiliated to units of the Territorial Army, unless they are already affiliated to units of the Regular Army; and while this latter affiliation may be continued, the units concerned must be placed in direct touch with the Territorial Army Associations in the counties in which they are raised, in order that they may profit by the advice and assistance of the Associations in instruction and training.

The minimum age at which boys may be enrolled as cadets will remain at 12 years, but those under the age of 14 will normally be formed in separate platoons, companies, etc. Training will be regulated by methods calculated to develop the principles of patriotism and good citizenship, and there will be a standard of qualification for the individuals and of efficiency for the unit; but regard will be had to the circumstances in which units have to work, and a unit failing in any one year to reach a high mark of efficiency will not necessarily cease to be officially recognised. In all cases musketry will be optional.

Pre-war Battle Honours.—In view of the decision that there will only be one Honours list for a regiment or corps, approval is now officially given for Territorial Army battalions carrying Colours to emblazon on the regimental Colour the pre-war Battle Honours of their regiment or corps as shown in the army list. Army grants are to be made to Territorial Army Associations to enable this to be carried out. This change will involve the removal of existing Battle Honour scrolls from Regimental Colours, the embroidery on both sides of Regimental Colours of a new outer wreath within which the new scrolls will be placed, and the provision and fixing of new embroidered Battle Honour scrolls. The cost of any other alteration or repairs to Colours may not be borne by army funds or by public funds of county associations.

Officers' Training Corps.—The results of the examinations held in March last for certificates "A" and "B," Officers' Training Corps, are officially announced. In certificate "A" (infantry), which is principally intended as a qualification for a commission in the Territorial Army and Regular Army reserve of officers, now or in the event of a national emergency, there were 2,956 candidates, of whom 2,019 were successful. Six schools unconnected with the Officers' Training Corps sent up 42 of the candidates, and of these 28 gained the certificate. The marks of the successful candidates will count in the army entrance and certain other examinations. Certificate "B," which is one of the qualifications for a university candidate for a commission in the Regular Army, and carries certain antedates in the case of other commissions, was gained by 114 out of 169 candidates.

FOREIGN.

(Reproduced by permission of the General Staff.)

FRANCE.

Organisation of the higher command in time of war.—In a special report recently drawn up by the "Commission de l'Armée" on the reorganisation of the army, the commission propose the amendment of certain articles of the present law which deals with the organisation of the higher command in time of war.

Under the present law of organisation, the vice-president of the Conseil Supérieur de la Guerre (now Marshal Pétain) would become commander in chief of the French armies in the field, and the chief of the staff (now General Debeney) would become his chief of staff.

The commission consider that it is desirable to allow more latitude in the application of the principle of unity of command, having regard to the diversified circumstances under which war may break out, and to the extremely variable conditions which would determine policy in any given case.

They therefore propose to amend the three articles dealing with the higher command in order to enable the government of the day to suit its action to the particular problem before it.

The text of the old law and of the "Projet de Loi" which will replace it are set out hereinafter in parallel columns:—

Present Law of Organisation.

Article 19.

The preparation of the higher command of armies and groups of armies is in peace time delegated to members of the "Conseil Supérieur de la Guerre," the composition of which is fixed by decree.

Article 20.

The vice-president of the Conseil Supérieur is commander-in-chief designate of the French armies in time of war.

Article 21.

In time of war, all French forces engaged in operations in whatever theatres of war are placed under the command of one G.O.C., entitled "commander-in-chief of the French armies," who is responsible for the general direction of operations.

A command is constituted for each separate theatre of operations; in each theatre a G.O.C. is in command with the title of "commander of the theatre of operations."

Projet de Loi.

Article 18 (formerly Article 19).

The preparation of the higher command of armies and groups of armies is in peace time delegated to members of the "Conseil Supérieur de la Guerre," the composition of which is fixed by decree. The attributions of the vice-president and members of the "Conseil" are fixed individually by the minister for war.

Article 20.

Deleted.

Article 19 (formerly Article 21).

In time of war, a command is instituted for each theatre of operations; in each a G.O.C. directs operations with the title of "commander-in-chief of the theatre of operations."

The French forces engaged in several or in all of the theatres of operations can be placed under a single commander, who assumes in these theatres the general direction of operations.

Construction of railways to serve practice ranges for long range guns.—A bill has recently been laid before the Chamber for "the construction and exploitation of railways to serve practice ranges, and for manœuvre of long range artillery, including guns on railway mountings."

It provides for two programmes of construction, the first of which, to be completed within two years of the passing of the Bill, comprises the installation of practice and manœuvre ranges, suitable for long range artillery and guns on railway mountings, and the provision of normal gauge railway facilities :—

- (1) On the Gascony coast between the mouth of the Gironde and the mouth of the Adour.
- (2) On the Channel coast along the Ile-et-Vilaine shore of Mont St. Michel bay and along the coast from Granville to Cherbourg. The lines thus constructed are to be linked by normal gauge spurs to the chemin de fer de l'État.

This programme also provides for the necessary construction or conversion of heavy artillery in order to provide at each range guns with which destructive and harassing shoots can be practised at ranges of 25–60 km. (15½–37 miles).

The second programme, for which no financial provision is made in the present Bill, comprises in the south-western region :—

- (a) A normal gauge line along the coast from Pointe-de-Grave to Cap Ferret.
- (b) A line from Cazaux to La Salie, with a spur to Arcachon, prolonged by a line along the coast from La Salie to Boucan and to Bayonne.

In the Channel region :—

A normal gauge line from Granville to Regnéville.

The Bill provides for the commercial working of the lines under "Sociétés de Régie" responsible to the Minister of Public Works.

The *personnel* of artillery units, metropolitan, colonial and native, will assist in the construction and working of these extensions, thus gaining valuable training and experience.

The annual cost will be covered by a special chapter in the artillery budget. The "Commission de l'Armée" have examined and approved the Bill and have laid it before the committees of finance and public works.

The commission has also submitted to the chamber a report on the project which contains several points of interest.

After laying stress on the importance of the work carried out by the long range artillery during the war and the necessity of having a trained *personnel* for it, the report dwells on the services that such artillery can render at the beginning of a war, during the period of mobilisation and concentration. The commission state that while technical research makes it certain that guns with a range of 150 km. (over 93 miles) will be available in the future, modern warfare will demand guns capable of carrying out destructive fire and counter-battery work at all intermediate ranges. It is pointed out that, should war be declared after France and Belgium have evacuated the Rhine Provinces and withdrawn from the frontiers laid down by the Versailles Treaty, guns such as described above would still be able to reach from those frontiers not only the Rhine provinces and their large towns, but also the whole territory now occupied in Westphalia and the Ruhr; and that similar artillery sited in Poland and Czechoslovakia would, if those countries intervened on the side of France, be able to bombard the industrial regions of Saxony and Silesia.

The commission conclude that the development of heavy long range artillery is of great importance, and will to some extent replace the guarantees France has

hitherto sought in the occupation of enemy territory, as by its means she will be able:—

- (1) To interfere with the enemy's mobilisation and concentration by harassing fire.
- (2) To compel the enemy to move his important aerodromes further into the interior of Germany. If every enemy machine has to fly an additional 150 km. (93 miles) out and home when attacking French territory, the problem of anti-aircraft defence will be greatly simplified.
- (3) To keep Germany's metallurgical and chemical industries under fire.

The commission point out that the project under consideration is rendered essential by the fact that the railway artillery can at present neither fire nor be moved, because the existing ranges are too limited in dimensions for modern long range equipments.

When during the war a 340 mm. (13.4-in.) gun on railway mounting attained a range of 42 km. (26 miles) with a special shell, the only place where it could be tested and its ballistics studied was the naval practice ground at Quiberon, and even there it was subsequently found necessary to limit the range to 36 km. (22.3 miles). To-day, France has manufactured guns which can attain ranges of between 60 and 90 km. (37½ and 56 miles), but there is no practice range on which the necessary trials can be carried out. Nor have the great armament firms which manufacture guns any facilities for trials at even the more limited ranges at which the destructive and counter-battery shoots will in the future be fired. The commission consider it essential that such facilities should be available to them and also to friendly countries such as Belgium which have no means of providing in their own territory ranges such as France now contemplates.

The two ranges now projected will remedy this state of affairs, and will be complementary to one another. That on the Gascony coast will suit ballistic experiments at all ranges, while that on the Channel coast will be specially suitable for experiments with shrapnel fire, since, owing to the configuration of the coast, atmospheric conditions are more normal than in the south. They also coincide with the two principal "groupings" of railway artillery, one of which is at Bayonne and the other in the north-eastern district.

The "projet de loi" provides for the construction of several ancillary installations, of which the facilities for aviation are the most important, as not only will aerial observation be required for ballistic purposes, but also a rapid aerial *liaison* service will be necessary between the various gun positions, observation posts, and meteorological stations. The distances separating these points will be considerable when it is a question of ranges up to 150 km.

As regards the financial aspect, the commission think that the estimated cost of 200 million francs for the whole undertaking is excessive, as also the estimated loss on working the railways of 3,000 francs per km. These estimates were drawn up by the minister of public works and will, in the opinion of the commission, require revision after consideration of additional data.

GREECE.

Notes on the present state of the army.

1. *Strength.*—(a) The classes now serving are those of 1922 and 1923. The 1919 and 1920 classes were demobilised last August, the 1921 class last December. The 1924 class is expected to be called up about 1st April, and to produce upwards of 35,000 men.

(b) The present strength (1922 and 1923 classes only) is given officially as—officers, 5,275; other ranks, 74,148; total, 79,423.

(c) Ration strengths are given officially as follows :—

	Officers.	Other ranks.
Regiment of infantry	40	700
Regiment of field artillery	18	280
Regiment of mountain artillery	15	400
Regiment of cavalry	30	300

2. *Prisoners of war.*—(a) The following figures are understood to be official :—

	Officers.	Other ranks.
Left in Asia Minor on evacuation	1,700	42,000
Since returned as prisoners of war	853	11,152
Unreturned (in round numbers)	850	30,000

(b) The Greek General Staff explain the discrepancy as being in part due to large numbers of men having discarded their uniform before capture. It is said that 30 per cent. of the prisoners still in civilian camps in Asia Minor are in reality soldiers, though the Turks do not recognise them as such.

3. *Medium artillery.*—(a) It is believed that no inventory has been made since the disaster in Asia Minor, but, so far as is known, there are now in Greece rather over 100 medium guns and howitzers, British, Austrian and French, varying from 10·5 to 15·5 centimetres.

(b) There is no indication that any guns have been sold to other countries, as has been rumoured of late.

4. *Equipment.*—The equipment of the army generally, and particularly as regards rifles, is at present in a highly unsatisfactory condition, but steps are being taken to remedy this.

UNITED STATES.

Reorganisation of the United States Coast Artillery Corps.—On 27th February, 1924, the War Department issued a general order affecting the reorganisation of the coast artillery corps.

Before 1901 the artillery of the United States army was organised into regiments, each regiment consisting of 12 heavy batteries and 2 light batteries. The heavy batteries correspond to those organisations which now man the heavy companies located in the harbour defences. The light batteries in 1907 became field artillery batteries.

At the close of the Philippine insurrection in 1901 the artillery consisted of 7 regiments. In the reorganisation of 1901 the artillery became a corps, consisting of a number of separate companies of coast artillery and separate batteries of field artillery.

In 1907 the coast and field artillery were separated; the field artillery was organised into regiments, but the coast artillery retained its corps organisation, except for such provisional battalions and regiments as have from time to time been temporarily organised for specific purposes. The governing reason for eliminating the regimental and battalion organisations from the coast artillery corps was that such an organisation, consisting of units of uniform strength and *personnel*, did not fit the varied requirements of the armaments placed in the harbour defences.

During the world war there was need for units of heavy artillery on movable mounts, railway and tractor drawn artillery, and for units of anti-aircraft and trench mortar artillery. These were organised from the coast artillery corps, the troops of which were fitted for these tasks, but, under the existing conditions, were being used for harbour defence work. It was necessary to organise battalions and regiments, utilising the existing separate companies to effect such organisations. These coast artillery corps regiments rendered valuable services in the operations of both the French and American armies.

At the conclusion of the world war, the responsibility for the future development and operation of railway, anti-aircraft, trench mortar and heavy tractor artillery, designed for use in coast fortifications, was definitely placed upon the coast artillery corps, and certain such units which had served during the war were retained.

Under present conditions the coast artillery is organised in a number of separate companies, to which are assigned the duty of manning the armaments in the harbour defences, of a regiment and 3 battalions of anti-aircraft artillery, a regiment and a battalion of railway artillery and 3 regiments of heavy tractor artillery.

On 30th June, 1924, the new organisation became effective. This reorganisation changes the companies of the coast artillery corps into regiments. Certain former regiments of artillery have been reconstituted into complete regiments, as far as possible with the batteries formerly belonging to them. The new organisation will consist of 16 coast artillery corps regiments, 2 coast artillery corps, Filipino regiments and 1 anti-aircraft regiment for duty in the Panama Canal zone. These new regiments with the 5 already in existence will give the coast artillery corps an organisation of 24 regiments. The reason for the change is said to be that in a future war it will probably be necessary for the coast artillery corps to form battalions and regiments of railway, heavy and anti-aircraft artillery, and a regimental organisation in peace time will facilitate this.

Existing battalions are to be expanded into regiments, each of three battalions, two of which are cadre battalions. Existing regiments and those regiments expanded from existing battalions are to retain their present numerical designation.

The 16 new American regiments are given numbers from 1 to 16 inclusive. The new anti-aircraft regiment is to be designated the 91st and 92nd.

Each of the regiments formed for the harbour defences in continental United States is to be organised into a headquarters battery, and either 7 or 10 lettered batteries. In those regiments having 7 lettered batteries, the batteries A and B will constitute the 1st battalion, C and D the 2nd and E, F and G the 3rd. In those regiments having 10 lettered batteries, batteries A, B and C will constitute the 1st battalion, D, E and F the 2nd and G, H, I and K the 3rd.

These regiments have been given this organisation so as to facilitate their conversion from harbour defence regiments into railway and either heavy tractor or anti-aircraft regiments. If railway artillery is ever needed for duty with field armies, any harbour defence regiment composed of a headquarters battery and 7 lettered batteries can be converted readily into railway regiments, which latter consists of a headquarter battery, a service battery and six firing batteries. Similarly any harbour defence regiment which is composed of a headquarters battery and 10 lettered batteries can be converted with facility into a heavy tractor or an anti-aircraft regiment, since both of these latter consist of 11 units.

Regiments are fitted to the requirements of the harbour defences according to the variation and strength of batteries. The War Department allots certain *personnel* or the various grades and ratings to each coast defence command. The size and composition of the various batteries of a regiment is not definitely fixed,

but, as has been done for a number of years in the case of separate companies of the coast artillery corps, is determined by the coast defence commander, who will, by a sub-allotment of the strength allotted by the War Department to his command, make the strength of each battery fit the requirements of its individual assignment.

SOME PRÉCIS FROM THE FOREIGN MILITARY PRESS.

BELGIUM.

BULLETIN BELGE DES SCIENCES MILITAIRES.

The numbers for May and June contain an account of the methods of recruitment of officers of the German army as set forth in a pamphlet lately published at Munich by a professor of the infantry school. In an introduction the professor indulges in a lament on the present situation of the German army officer, who, thanks to the provisions of the treaty of Versailles, is now a member of an army divorced from the nation, since there is no longer a national army, but merely a collection of voluntarily enlisted men who serve for a period of 12 years. "The officer consequently no longer holds the first place in the country as in the days of the empire; but the time is probably not far distant when, thanks to the rise of national sentiment, he will again enjoy the high esteem in which he was formerly held."

A candidate for a commission now enlists as an ordinary recruit in a unit of the German army, and after a period, which varies according to the degree he holds, but not less than 15 months, he becomes, after passing an examination, an officer-aspirant, and enters for a course at the infantry school at Munich. On passing out he passes for the rank of ensign, and, on the completion of a second course, he passes another examination and becomes a first ensign. On election for lieutenant by the whole officer corps of the unit he has now joined, this rank is then conferred upon him.

The courses of instruction at Munich are divided into 3—a first course, a second course, and a course of equitation, with a special course of instruction in the different arms and in a school of engineering. The first course lasts 10½ months, and is of a very practical nature, embodying the lessons of the last war, and including instructions in the various weapons in use, riding, physical training, etc., followed by 7 weeks in camp. The second course is more advanced; the course for officers entering the cavalry is at Hanover, for artillery at Jüterberg, and for engineers at Munich.

In these two numbers of the *Bulletin Belge* are also continued the account of the operations of the Belgian army in the great war, and they are specially concerned with the events of the 5th October in Antwerp leading up to the counter-attack delivered during the night that followed. Our official history of the war, prepared in the historical section of the Committee of Imperial Defence, has no more than touched so far on the initial events of the defence of Antwerp, and in view of the criticisms made in the account now appearing of the action of the British troops, English readers will await with interest the appearance of vol. 2 of our official history of the war, wherein the defence of Antwerp will, no doubt, be fully dealt with. The compiler of the account of "les opérations de l'armée Belge" appears to agree with the remarks of General von Tschischwitz in his *Schlachten des Weltkrieges*, who is quoted as stating as follows of the counter-attack and its results:—"On peut, à présent, estimer que ce fut une chance

que les chefs subordonnés—spécialement le général Paris—n'aient pas eu une vision bien nette de la situation critique des troupes allemandes en avant de la Nèthe. Sinon ils ne seraient d'eux-mêmes emparés avec passion du plan du Haut Commandement Belge, malgré sa transmission tardive. Ils auraient pu dès lors, vu la situation, remporter un grand succès. Or, en effet l'attaque se réduisit à une entreprise partielle et futile effectuée par deux régiments et qui, malgré les succès du début, ne pu amener un revirement."

FRANCE.

REVUE MILITAIRE GÉNÉRALE.

Commandant Grasset, the well-known writer on military history, commences in the number dated 15th April what seems destined to be a long history of the war in the Peninsula—long, judging from the fact that in the 26 pages of his opening number he has got no further than the beginning of June, 1808—some few months, that is, before any British troops landed in the country. The author deals with the risings in the Asturias, in Galicia, in Old Castille, and in Aragon and tells us of the national leaders who aroused Spanish feeling and set themselves in opposition to those officers in command of Napoleon's armies of occupation, giving the strength of the forces, their composition and the weapons upon which the Spanish were able to draw. Incidentally, there is a complete order of battle of certain of these Spanish armies. This opening instalment of what should prove a very complete history, ends with the arrival in England of the two plenipotentiaries sent by the Junta, and of the publication of the promise of assistance given by the British government of the day.

REVUE D'INFANTERIE.

The May issue of this monthly contains a paper on night attacks, by Colonel Jèzo, wherein the writer deals *seriatim* with the many objections urged against committing troops to this particular form of warfare. He summarises the objections as follows:—

1. That a night attack offers at least equal difficulties to one carried out by day: the approach march is certainly easier, but if artificial illuminants can be employed the action of the various arms and flanking movements are practically identical.
2. That guns and tanks are equally necessary by night as by day to confirm a victory, and their employment by night is out of the question.
3. That night operations can only be limited to *coups de main* carried out by special troops directed upon objectives limited in scope and thoroughly well known. That in such attacks the strength of the assailant does not rest on numbers nor on the weight of his armament, but in the depreciation of the *morale* of the opponent threatened with an unknown danger; such attacks should be entrusted only to specially selected light troops.
4. Night attacks have rarely given results of serious value; on the other hand they have often given rise to grave failures and these have usually increased in ill effect according to the numbers employed.

To (1) the writer replies that the use of guns or machine guns on either side, in the attack or defence by night, cannot be of much value even when illuminants are employed, while the amount of ammunition expended will never bear any useful proportion to the degree of success achieved.

As to (2) the writer seems of opinion that guns can only usefully co-operate in a night attack when they are exclusively directed on *le champ clos dans lequel devait se vider la querelle*.

In regard to (3) the author agrees that in certain conditions better results may be obtained by a limited objective and the employment of a *corps d'élite*; he, however, envisages a case where the adversary has already been badly beaten by day and is seeking at nightfall to disengage his troops from contact for purposes of reorganisation; surely, in such a case, Colonel Jèzo seems to urge, the assailant should make use of every man at his disposal *et viser des objectifs à grande distance*; only by such measures can really important results be obtained and not only grea-
 osses be inflicted on the enemy but his *morale* be sensibly lowered.

Objection (4) the writer meets by stating that this is not in accordance with the teachings of history; he believes that night operations will be more frequent in the future than they have ever been in the past, and that not only should they be more practised by the troops, but that officers and men should be educated to believe in their value.

This paper contains a historical summary of the many occasions on which nightattacks have been made—showing when successful and when these have failed, and the reason for such failure—from the Napoleonic wars up to the Great War in which the armies of the European Powers were recently for so long engaged.

REVUE DES TROUPES COLONIALES.

The March-April number of this journal contains what is, within certain limits, a very well-informed account of the organisation of the Sudanese army by Chef de Bataillon Tourenq, of the French Colonial Infantry. The article commences with a brief sketch of the military history of the Sudan, and details the circumstances under which the British took over the government of the country, which Lord Parnoor has recently stated we have no intention of surrendering. The writer enumerates all the different battalions, Egyptian and Sudanese, which form the garrison of the Sudan, with the stations occupied by each, and gives a list of the different ranks, with their corresponding values in the British army and the badges denoting these ranks; some account is also given of the recruitment of the rank and file and also that of the Egyptian and Sudanese officers. So far the article is informative and generally accurate; but it is when the writer discusses the relations of the British and Egyptian or British and Sudanese officers that he does a grave injustice to those who have made the Sudanese army and maintained it at its present high level of efficiency. He says that the Englishman, being naturally very reserved, there is not between him and his command *ce contact étroit, cette pénétration morale, qui crée la confiance mutuelle*; he infers that the British officer actually dislikes his Egyptian subordinate, while if the Sudanese officer is on the whole *moins détesté* than the Egyptian, the British officer keeps both equally at a distance! It is to be regretted that an article so generally well informed should be marred by certain gross inaccuracies as those above noticed.

GERMANY.

The quarterly *Wissen und Wehr*, for February last contains, under the title of "The British Expeditionary Force of 1914 in France," what purports to be a review of Vol. 1 of our Official History of the War, but most of the interest of which is contained in the comments to be found therein and in the remarks made by the writer on our officers and men and on our general conduct of the war. Thus, astonishment is expressed that, while the German G.H.Q. had only very inaccurate

information about the arrival in France and the movements of the British forces, our General Staff was sufficiently well informed of the whereabouts of the First and Second German armies. As to the Battle of Mons, the German writer agrees that the advance of the invaders was held up for 24 hours, and that these suffered heavily from the admirable marksmanship of the British infantry. The German writer, like many of his predecessors, is silent as to the effect on the German plan of campaign of the stand of the Second Corps at Le Cateau, but he expresses his admiration of the way in which detached bodies, often without officers, conducted their retirement, and even in some cases fought through the German lines to Antwerp or Boulogne. The impression made upon the reviewer by a perusal of our Official History is that the British soldier of 1914 was a splendid and experienced fighter, a first-rate rifle shot and especially formidable on the defensive; while the officers were gallant gentlemen, and often sacrificed themselves from the highest downwards. He criticises adversely the higher leading, which suffered from the small opportunity for such practice in peace time.

MILITÄR WOCHENBLATT.

In the issue of the 25th May of this publication—which has now become a weekly—there is a short article by Colonel Mahlmann on "Infantry Communication in the Offensive." The writer opens with the statement that the long period of static warfare in 1914-1918 was responsible for many ideas which are wholly unsuited for warfare of an offensive character, and that while in a war of movement the rapid promulgation and receipt of orders are of the very first importance, all the highly technical means of communication in use in static war require time for their installation. He lays stress upon the difficulty of maintaining communication with rapidly moving troops, and considers that under such circumstances leaders must either cut themselves adrift from their bases, whence ordinarily orders would be sent to them, or that they must hold up their advance for fear of losing touch. To put up a signal station and get a message through cannot, he avers, be done under from 15 to 20 minutes, and is only of value when the distance is so great that a runner cannot get through within that limit of time. On the whole, then, the writer is of the opinion that—at any rate in the infantry—it is quickest and safest to send orders and information by runner in any action of movement.

The *Militär Wochenblatt* of the 11th June gives some interesting particulars of the composition of the German Reichsheer under date of the 1st November, 1922. The Treaty of Versailles sanctioned the maintenance of a German army of a strength not exceeding 100,000, inclusive of 4,000 officers—a strength which was later increased so as to allow of an additional 500 men of the Army Medical and Veterinary Services, and actually at the end of 1922 the Reichsheer contained 4,053 officers and 89,874 non-commissioned officers and men. Of the 4,053 officers, only 391 are under the age of 25, the percentage of these—only 9·6—being very much lower than in the other ranks, where there are 64,850—or over 71 per cent.—under that age. On the other hand, and, no doubt, by reason of their greater age, the percentage of married is very much higher among the officers than among the rank and file. Of the officers, 69·1 per cent. are townsmen, and nearly one-tenth of them come from territories which have now ceased to belong to Germany; of the other ranks, the number hailing from town or rural districts is about equal, while only some 6·7 per cent. of these are recruited from the yielded territories. A table gives the pre-enlistment calling of the non-commissioned officers and men, and from this it appears that nearly one-half were recruited from industry, and less than one-fourth from rural occupations, while only just over 6,000 were

unemployed before joining the army. The majority of the serving men look to government employment on the conclusion of their period of army engagement; but it is pointed out that there are hardly enough of such jobs to go round, and yet that something must be done to meet the demand, since the strength of a voluntarily enlisted army can only be maintained if the future of the men is assured on return to civil life.

WAR PHOTOGRAPHS.

It may interest those of our readers who are not already aware of the fact that the Imperial War Museum, which has now transferred its quarters from the Crystal Palace to South Kensington, contains a very complete pictorial record of the War, comprising upwards of 100,000 official and unofficial photographs depicting scenes and subjects of interest to the three Services in all theatres of operations during the period 1914-1919. In addition, the Museum possesses very extensive records in the form of maps, charts, aerial "oblique" and "vertical" views, and other matters of topographical interest; also an extremely valuable collection of photographs of naval interest dating back to 1860, in which war craft of all types and nationalities, from battle ships to coastal motor boats, are shown, as well as views of mercantile vessels, portraits of naval notabilities, etc. Copies of the above-mentioned photographs may be secured on application to the Museum, and orders can be dealt with by post where it is not convenient for the person interested to call and inspect the records at the Museum.

This very valuable collection of photographs has already proved of great use for illustrative purposes to authors of Official Regimental and Divisional Histories, Memoirs, and other War Literature; to lecturers on matters of Naval and Military interest who require to illustrate such lectures with lantern slides; and to individual officers and men who desire to illustrate their own personal diaries of the momentous events which they experienced during the period of the Great War.

ROYAL AIR FORCE NOTES.

PROMOTIONS AND APPOINTMENTS.—Group Captain A. M. Longmore, D.S.O., has been promoted to air rank.

The following appointments have been made:—

Group Captain A. L. Godman, C.M.G., D.S.O., to command the School of Technical Training (Men), Manston, with effect from 2nd July, 1924.

Air Commodore B. C. H. Drew, C.M.G., C.B.E., has been transferred from Egypt to Home Establishment, with effect from 12th May, 1924. He has been relieved by Air commodore R. H. Clark-Hall, C.M.G., D.S.O., who sailed from the United Kingdom on 2nd May, 1924.

Air Commodore F. C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., to be Director of Technical Development, Air Ministry, 18th April, 1924.

Group Captain C. F. Kilner, D.S.O., to be chief staff officer, coastal area, 14th April, 1924.

HOME COMMANDS.

ORGANISATION AND MOVEMENTS OF UNITS.—On 1st April, 1924, No. 16 (army co-operation) squadron was formed at Old Sarum, at a strength of three flights; and No. 13 (army co-operation) squadron, was formed from the signal co-operation flight, at Kenley.

On 30th April, 1924, No. 3 (fighter) squadron moved from Manston to Upavon, and No. 9 (bombing) squadron from Upavon to Manston.

With effect from 1st May, 1924, No. 5 wing headquarters, Biggin Hill, was abolished.

With effect from 1st May, 1924, the flying boat development flight was reformed at Felixstowe.

With effect from 19th May, 1924, No. 1 group became No. 6 group, with headquarters at Kenley, and a new No. 1 group was formed with headquarters at Kidbrooke. No. 6 group is primarily responsible for the command, training and administration of all home defence fighter squadrons.

On 30th May, 1924, No. 13 (army co-operation) squadron moved from Kenley to Andover, and was increased to headquarters and two flights.

On 30th May, 1924, No. 11 (bombing) squadron moved from Bircham Newton to Netheravon, and No. 99 (bombing) squadron moved from Netheravon to Bircham Newton.

On 31st May, 1924, Nos. 405 and 406 (fleet fighter) flights were formed at Leuchars, and No. 462 (fleet torpedo) flight at Gosport. Also a fleet reconnaissance flight of Fairey IIID floatplanes, for embarkation eventually in H.M.S. "Vindictive," was formed at Lee-on-Solent.

Aircraft carrier H.M.S. "Eagle" proceeded to join the Mediterranean fleet on 31st May, 1924, with the following flights on board :—

No. 402 (fleet fighter) flight.

No. 440 (fleet reconnaissance) flight.

No. 422 (fleet spotter) flight.

No. 460 (torpedo) flight.

On 1st June, 1924, the establishment of No. 32 (fighter) squadron, Kenley, was completed to headquarters and three flights.

The strengths of the undermentioned home defence squadrons were increased to headquarters and two flights, on 1st June :—

No. 19 fighter squadron, Duxford.

No. 29 fighter squadron, Duxford.

No. 11 bombing squadron, Netheravon.

AIR FORCE RESERVE.—The training of the reserve of air force officers is proceeding at the civil flying schools and a new school at Brough in Lincolnshire has recently been opened and is now working. A scheme whereby a limited number of officers in class A or AA may carry out a short ground course at various royal air force units is in an advanced state and officers will, at an early date, commence training under this scheme. Approximately 50 per cent. of the officers in classes B and BB are being called up for training at selected royal air force units.

ROYAL AIR FORCE CADET COLLEGE, CRANWELL.—The Air Council have recently approved a revised scheme for the entrance examination to the R.A.F. Cadet College, Cranwell, on similar lines to that drawn up by the Army Council as a result of the recommendations of Lord Haldane's committee on the entry and training of army officers.

The age limits remain as at present, viz. : 17½ to 19 (19½ in special cases). The first examination under the new scheme will take place in June, 1925. The main features are as follows :—

(a) Before being admitted to the examination a candidate, other than on nomination by the Air Council, will require to produce school certificates A or B, obtained by passing the school certificate examination of the Oxford and Cambridge Schools Examination Board or an equivalent examination.

(b) The subjects will include a personal interview and the production of the candidate's record, for which marks will be awarded.

(c) The subjects of examination have been re-arranged to afford a wide choice of subjects and are based upon the ordinary curriculum of the public and secondary school. No special preparation by means of army classes or army tutors should therefore be needed and a boy in the upper forms of his school, no matter what side he is on, should be able readily to find suitable subjects to take at the examination from the wide range offered.

Boys who fail in the November, 1924, examination and are eligible by age for the June, 1925, examination will be allowed to take the latter without producing certificates A or B.

It is proposed, at an early date, to enter boys for training as clerks.

Twenty-two flight cadets are due to pass out from the college in August next.

NAVAL CO-OPERATION.—H.M.S. "Eagle" and "Hermes," commissioned in February of this year, have been continuously employed in the deck landing training of their flights, and in miscellaneous flying trials. H.M.S. "Eagle" left for the Mediterranean on the 31st May. H.M.S. "Argus" at present remains at Portsmouth for training and experimental purposes. The course at the School of Naval Co-operation, Lee-on-Solent, for naval observers terminates in October of this year. The next course assembles the following month. Torpedo attacks have been made from Gosport on three occasions during the last quarter. No. 481 flight at Malta have continued as before their participation in numerous artillery, torpedo and photographic exercises with H.M. ships of the Mediterranean fleet and army units at Malta.

ARMY CO-OPERATION.—Beyond the usual routine co-operation work and training no exercises of particular interest have taken place during the last three months. A large programme of exercises with units of the Aldershot, Eastern, Southern, Northern, Western, and London commands will take place during July, August and September in the following districts :—Aldershot, Salisbury Plain, New Forest, Shorncliffe, Dover, Catterick, Ripon, Goodwood. Nos. 2, 4, 13 and 16 squadrons will perform these duties.

At Hunstanton between June and September, No. 32 squadron is co-operating with the anti-aircraft brigade.

Fourteen army officers passed the army co-operation course last April. The next course for army officers commences in November.

FLYING TRAINING.—A start has been made with the training of officers of the Royal Navy as aeroplane pilots, it having been decided that a proportion of the

pilots of the Fleet air arm shall in future be naval officers attached to the Royal Air Force. A number of these officers commenced training at No. 1 flying training school, Netheravon, on the 16th June. The occupation of this school in this way and the fact that the other flying training schools are full up has necessitated a temporary cessation in the acceptance of candidates for short service commissions. The intake of short service candidates will, however be resumed at an early date.

No. 1 flying training school, Netheravon, has been reorganised and re-equipped to train naval officers on a six months' course. The number of pupils has been reduced to enable each pupil to get the same amount of flying time in six months as has been carried out during the 10 months' courses. The ground syllabus has also been revised so as to meet the requirements of the naval officers. At the termination of the six months' course naval officers will carry out service training in coastal area units where practice for deck landing, etc., will be done. Deck landing will then be proceeded with the following spring. A further course of naval officers will be placed under training at No. 1 flying training school in six months' time.

Since the beginning of the year, 136 officers and airmen have completed their *ab initio* training at flying training schools.

ENTRY OF ACCOUNTANT OFFICERS.—The Air Council have revised the method of entry of accountant officers and are arranging the first examination in September, 1924. Entrants will be given permanent commissions as pilot officers on probation and will be confirmed and promoted to flying officers on completion of a year's satisfactory service. The scheme has been drawn up in consultation with the Institute of Chartered Accountants and the Society of Incorporated Accountants and Auditors, and is designed to attract qualified accountants who have completed five years articulated services. Age limits, 22–26 (30 for candidates under certain conditions who have served in the fighting forces). Examinations will be held by the Civil Service Commissioners and will include a personal interview by a committee under the chairmanship of the First Commissioner of the Civil Service Commission. Candidates considered suitable at this interview will proceed to a written examination, if medically fit, in (a) English and general knowledge, and (b) accountancy (including bookkeeping). The standard for the latter subject will be that of the final examination of the Institute of Chartered Accountants and the Society of Incorporated Accountants and Auditors, excluding executorship and partnership accounts.

VISIT OF SEAPLANES TO TUNIS AND SFAX.—On the 24th June two seaplanes from No. 481 flight left Malta on a long distance practice flight. They visited the French stations at Tunis and Sfax, where they were warmly entertained by the French officers. The return flight to Malta was made on the 28th June.

ROYAL AIR FORCE PAGEANT.—The annual aerial pageant was held at Hendon on the 28th June. In addition to the usual competitions, etc., the following two items of outstanding interest were introduced :—

- (i) An attack by torpedo aeroplanes on a commerce raider.
- (ii) A French fighting squadron gave a display.

OFFICERS' TROPICAL DRESS.—The mess dress jacket with its stand-up collar has been replaced by a jacket with turned down collar, which should prove more comfortable in wear.

The new jacket is an exact replica of the home pattern blue mess jacket.

The old pattern jacket may be kept in wear at the officer's option until worn out.

ROYAL AIR FORCE STAFF COLLEGE.—The third annual course at the Royal Air Force Staff College (Andover) commenced on 5th May. The course consists of 29 officers as follows:—

Royal Air Force	21
Royal Navy	2
Army	2
Indian Army	1
Royal Canadian Air Force	1
Royal Australian Air Force	2
	—
	29

SERVICE UNITS' TRAINING.—Nos. 39, 100, 207, 25 and 56 squadrons will carry out aerial bombing and firing practices during August at Eastchurch.

OVERSEAS COMMANDS.

IRAQ.

The situation has been fairly settled throughout Iraq during March, April and May.

On the 7th April, Air Vice-marshal J. F. A. Higgins, C.B., D.S.O., A.F.C., assumed command of the British forces in Iraq vice Air Marshal Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., who left Baghdad by air for Aleppo on the same day *en route* for England.

IRAQ.—General.—On the 22nd April the Iraq Ulema, who went to Persia in voluntary exile last June, with two exceptions, returned to Baghdad, having received the King's pardon and permission. They have given written guarantees to refrain from all further interference with government affairs.

During March two French machines arrived at Baghdad from Damascus on a *liaison* visit. A stay of three days was made.

During April, the air officer commanding carried out inspections of various units.

On the 8th April the high commissioner, accompanied by his A.D.C., proceeded by air to Kirkuk and during the next few days visited Erbil, Mosul, Zakho and Aqra. He returned to Baghdad on the 16th.

On the 9th April five D.H.9. As of No. 8 squadron made a non-stop flight from Aleppo to Baghdad, a distance of 520 miles, in four hours twenty minutes.

Squadrons have been busily engaged throughout in both aerial and ground training. Time has also been devoted to army co-operation work.

AKHWAN RAIDS.—On the 15th March, Akhwan tribesmen made a raid on some Iraq tribes in the vicinity of Bir Unsab, inflicting casualties on a considerable scale and capturing much live stock. In order to prevent any spread of the trouble No. 84 squadron, 2 sections of armoured cars and 200 Arab army infantry were moved to El Djaliba. Reconnaissances were carried out daily for some time, but no further hostilities took place and the detachments returned to their normal stations in May. No. 84 squadron flew 687 hours during March, which is a record for Iraq.

The Akhwan also raided the Hawazin tribe of Kuwait during April. A number of camels and sheep were looted and many casualties were reported.

During April there was reason to believe that the Akhwan might possibly attack the Amarat tribe in the neighbourhood of L.G. 9 on the Cairo-Baghdad air route.

A flight of Bristol fighters and two sections of armoured cars were accordingly sent to Ramadi and carried out daily reconnaissances for a few days until it was found that a raid was no longer likely.

DIWANIYAH AREA (95 miles S.E. of Baghdad).—During February and March tribes in the Afaj area displayed opposition to government and matters were brought to a head on the 24th March when a party assaulted a revenue official and forcibly released the brother of their chief from police custody.

As a consequence a force of 150 police occupied and then burnt Risan, the chief's village, on the 27th.

On the 16th April there was a further affray between the tribesmen and police in this area: the police, 150 in number, were driven into Afaj and besieged, losing four killed. Aeroplanes and armoured cars were accordingly despatched to Diwaniyah, and the tribe was attacked by air on the 27th. The district was deserted and no casualties to tribesmen occurred, but huts were burnt with good effect, and police subsequently patrolled the area. A further raid was carried out by one machine on the night of the 2nd-3rd May, and flights were made over the district on the following day. The sheikhs of the two main tribes implicated then came in and the detachments returned to their normal stations.

KIRKUK (150 miles N. of Baghdad).—On the 4th April a regrettable incident took place at Kirkuk. Following an altercation between three privates of the Assyrian levies and some Moslem shopkeepers, the trouble spread and eventually two companies of levies seized their rifles and ran amok through the town for about three hours, firing at all Moslems they met. Armoured cars were immediately despatched to Kirkuk from Kingiban, and two companies of the Royal Inniskilling Fusiliers were sent by air from Baghdad. By the time the latter had arrived, however, British officers had, at great personal risk, managed to get the Assyrians under control, thereby undoubtedly saving the local Christians from massacre by the enraged Moslem population. The latest estimate of the civilian casualties is 48 killed and 6 wounded, and 5 of the Assyrian levies were also killed. On the 5th, the high commissioner and air officer commanding visited Kirkuk by air, and the former issued a proclamation saying that prompt enquiries would be made by British officers, justice done and compensation paid. This had the effect of quietening the situation. Courts were quickly set up, and 5 levy officers and men were removed to Baghdad under arrest.

KURDISTAN.—In Kurdistan Sheikh Mahmoud continued in his attitude of defiance to Government. During March, as his influence in the Surdash area (30 miles N.W. Sulaimaniyah) was on the increase and pro-government elements were becoming alarmed at the turn of events, it was decided to take air action against him.

Raids were accordingly made on Kani-Kawi on 14th March and 16th March by 5 and 4 machines respectively and resulted in the dispersal of the Mahmoud party in that district. On the first raid one machine was shot down by the target, but both pilot and observer were picked up by two of the remaining machines which landed alongside. Further raids were made on 27th March on Abdalan, Quarachitan and Girdabar (15 miles N.W. Sulaimaniyah) by 4, 4 and 5 machines respectively. Although the bombing of these three villages did not result in any great material damage, it served to discredit Mahmoud in the eyes of his supporters, and it has greatly impeded his efforts to collect taxes outside the immediate vicinity of Sulaimaniyah and has made people realise that dealings with Mahmoud yield much trouble but little profit.

In pursuance of the decision to reestablish administration in the Halabjai

(40 miles S.E. of Sulaimaniyah) district, copies of a proclamation were dropped by air on various villages calling on the inhabitants to assist the officials in every way and obediently to carry out all official orders of the government.

Sheikh Mahmoud attempted to utilise the Kirkuk incident with a view to stirring up trouble in the surrounding districts and to this end pressed the local chiefs to combine and attack the levy battalion stationed at Chemchemal.

Proclamations were dropped on Sulaimaniyah, warning him and all concerned that, unless he surrendered himself to Kirkuk or Chemchemal by the 25th May, his headquarters would be bombed between the 26th and 31st of the month. As he did not comply Sulaimaniyah was raided on the 27th and 28th, and portions of the town were badly damaged and burnt. No casualties have been reported. As a consequence, Mahmoud's prestige is now at a very low ebb.

INDIA.

Air action has been carried out once during the period under review, otherwise units have been chiefly occupied in training and in co-operation work with various army training camps.

On various occasions British and Indian officers of the Indian army have been taken up for air experience.

Nos. 5 and 31 squadrons changed stations between the 10th and 13th March, No. 5 squadron from Ambala to Dardoni and No. 31 from Dardoni to Ambala. All serviceable machines were flown through in 2 days, spending the night at Lahore *en route*.

Various reconnaissance flights have been carried out from Dardoni. On the 14th March, six machines of No. 5 squadron flew over the greater part of Waziristan to have a general look at the country.

On 7th April, two machines of No. 60 squadron and two of No 27 squadron made a reconnaissance to Chitral, which was, according to the report of the political agent, Malakand, very much appreciated by the inhabitants of that neighbourhood.

On 21st February, 1924, the Mian Gul of Swat was taken up for a flight at his own request, over his territory in Risalpur. This flight aroused much resentment as tribal opinion was much against the Mian Gul for having abetted a lifting of the "purdah."

On 19th April a machine co-operated with two guns of a 6-in. howitzer battery at Razmak in shelling Mandech as a reprisal for some sniping at patrols. W/T *personnel* and a ground station were conveyed to Razmak by air by two machines. The shoot was successful.

On 22nd April two machines escorted the withdrawal of infantry from Chagmalai to Jandola.

On 25th April seven machines of No. 5 squadron carried out a demonstration flight over several villages in Waziristan, as the Malikis of these places had disobeyed a summons to come into a jirga.

On the 28th the air officer commanding made an air reconnaissance of the frontier embracing Michni, Landi Kotal, Kohat, Fort Lockhart, Arawali and Parachinar. He was escorted by three machines.

During March a D.H. 9A made an attempt to fly from Karachi to Delhi in one day; it was, however, forced to land with engine trouble near Jullundar, after covering some 900 miles.

OPERATIONS.—During May it became necessary to take action against the tribes in the neighbourhood of the Spli Toi and Dre Algad.

All the sections concerned were warned that, if they did not comply with the government terms by midnight 24th-25th, air or other action would be taken against them. By that date three of the four sections involved had complied with the terms.

ADEN AND SOMALILAND.

Training in gunnery, bombing, photography and musketry were carried out regularly during March and April with good results.

On the 16th April the *personnel* of the Somaliland detachment were relieved, the change over being carried out by air.

PALESTINE.

During the first week of March machines of No. 14 squadron carried out co-operation with three squadrons of the Palestine gendarmerie. Aircraft kept in constant touch with a column on a march over a distance of over 200 miles. On one occasion the aircraft rendered valuable assistance to the ground troops by dropping food and water by means of parachutes.

Training continued during March, April and May.

The armoured cars made several road reconnaissances and in addition driving and other training was carried out.

During May a party of the Arab legion was attacked on its way to Kaf and sustained several casualties, including one man killed.

EGYPT.

A flight of Bristol fighters from No. 208 squadron was detached at Khartoum from 31.12.23 to 6.4.24 for co-operation with the military forces in Sudan. The machines proceeded and returned by air. Their station is Moascar (70 miles N.E. of Cairo near Ismailia).

MARCH.—During the month normal training was carried out.

On 27th aerial exercises, on the lines of the pageant at home, were held at Heliopolis.

Command manoeuvres took place during the month and all squadrons took part.

APRIL.—On 18th April Corporal Ryan, of No. 216 squadron, was murdered by two students outside the gates of the Heliopolis Sporting Club. One of the assassins was caught by some airmen, who gave chase, and he was handed over to the police. He later confessed and gave the name of his accomplice. The Egyptian Government have expressed their indignation and regret at the incident. Normal training was carried out during the month. During co-operation with armoured cars experiments were made in reading the Popham Panel from a Crossley tender on the move and were very satisfactory. Daily flights were carried out to record the temperature of the upper air. No. 208 squadron carried out very little flying during the month in view of the strenuous work carried out on the Khartoum flight and manoeuvres, and the squadron concentrated on ground training.

AIR SURVEY.

A successful survey by aerial photography has been carried out of the Irrawaddy Delta, Burma, under the direction of Mr. Ronald Kemp, formerly chief inspector of aircraft to the Government of India. Practically the whole of the work was carried out by one aircraft, which flew a total of about 10,000 miles and exposed 3,000 photographic plates. In all, 1,350 square miles were covered by the aerial survey and the field work was completed within three months. A ground survey

would have been almost an impossibility owing to the swampy and dense nature of the country, and, had it been undertaken with the same number of expert *personnel*, it might have occupied as many years as the air survey occupied months.

AVIATION IN FOREIGN COUNTRIES.

FRANCE.

NAVAL AVIATION : NEW MINISTRY OF MARINE.—M. J. L. Dumesnil has been appointed Minister of Marine in the new Government. This appointment has caused great satisfaction in the naval air service, as M. Dumesnil is an enthusiastic supporter of naval aviation and was the Under-Secretary of State for Air in M. Clemenceau's Government.

MILITARY AVIATION.—Lieutenant Pelletier d'Oisy, of the French military air service, left Paris on 24th April, 1924, on a flight to Tokio, accompanied by a mechanic—Sergt. Besin. The Ministry of War placed at his disposal a Breguet 19 A. 2, equipped with a 400-h.p. Lorraine engine. The radius of the machine was increased by the addition of extra petrol tanks.

Lieutenant d'Oisy reached Shanghai on 20th May, where his machine was crashed in landing, having covered a distance of 10,064 miles in 89½ hours flying time. On a fresh machine (Breguet 14 A. 2), lent by the Tuchun Chekiang, he left Shanghai and reached Tokio on 9th June, the total distance covered being 11,500 miles.

The following is a complete schedule of this very fine flight :—

April 24th ...	Paris-Bucharest ...	1,240 miles.
" 25th ...	Bucharest-Aleppo ...	930 "
" 26th ...	Aleppo-Baghdad ...	460 "
" 27th ...	Baghdad-Bushire ...	500 "
" 28th ...	Bushire-Bandar Abbas ...	340 "
" 29th ...	Bandar Abbas-Karachi ...	700 "
May 3rd ...	Karachi-Agra ...	700 "
" 5th ...	Agra-Calcutta ...	750 "
" 9th ...	Calcutta-Rangoon ...	650 "
" 10th ...	Rangoon-Bangkok ...	350 "
" 11th ...	Bangkok-Sangoi ...	480 "
" 13th ...	Sangoi-Hanoi ...	750 "
" 18th ...	Hanoi-Canton ...	500 "
" 20th ...	Canton-Shanghai ...	800 "
" 29th ...	Shanghai-Peking ...	700 "
June 2nd ...	Pekin-Mukden ...	409 "
" 3rd ...	Mukden-Pingyang ...	230 "
" 4th ...	Pingyang-Tai-ku ...	300 "
" 8th ...	Tai-ku-Osaka ...	425 "

Total distance, 11,500 miles.

The Breguet 19 A. 2 is shortly to become the standard reconnaissance and two-seater fighting machine of the French air service.

R.A.F. MISSION TO FRANCE.—On the 6th April a mission, consisting of seven officers of the Royal Air Force, left England for one week's tour of inspection of certain units and establishments of the French military air service.

They were received with great cordiality and no efforts were spared to make their visit a success.

They were shown everything they wished to see and were greatly impressed with the high standard of proficiency of the French military air service.

CIVIL AVIATION: APPOINTMENT OF UNDER-SECRETARY OF STATE FOR AIR.—Under the new government M. Laurent Eynac has been appointed Under-Secretary of State for Air.

M. Eynac has held this appointment continuously since January, 1921—that is to say, throughout the whole of the Briand and Poincaré ministries.

A few months ago M. Poincaré decided as a measure of economy to suppress four under-secretaries, of which the aviation department was one. This was done, and M. Eynac became an unpaid director.

The appointment has now been re-established and he is once more under-secretary of state for air in the Ministry for Public Works.

UNITED STATES.

ESTIMATES 1924-1925.—The estimates set out below have recently passed through both the House of Representatives and the Senate and only await the signature of the President to become law.

(a) *Naval air service.*—The estimates for the naval air service for the fiscal year ending 30th June, 1925, amount to:—

\$14,768,500 (£3,408,430 at present rate).

Out of this total a sum of \$5,264,826 (£1,215,895) is earmarked for "new construction and procurement of aircraft and equipment."

(b) *Army air service.*—The army air service estimates for 1924-1925 amount to \$12,435,000 (£2,871,824 at present rate), on to which may be added the unexpended balance of \$1,000,000 from 1922 which is being recommended for re-appropriation, making in all a total of \$13,435,000 (£3,102,771 at present rate). Of this sum \$3,854,700 (£890,231) is to be devoted to the purchase of new machines, engines and equipment.

It is interesting to draw a comparison for the year 1922-1923 between the budget appropriation and the amount actually known to have been expended by the two air services:—

Total combined expenditures	...	...	=	£13,283,944
Total combined appropriations	...	...	=	£5,664,705

Excess of expenditure over appropriations	=	£7,619,239 (excluding approx. £2,000,000 worth of surplus war material used by the army air service).
---	---	--

(d) *Civil aviation.*—The sum of \$2,750,000 (£635,104 at present rate) is recommended for the post office air mail from New York to San Francisco. This amount will nearly double the 1923-24 appropriation, as it is proposed to run the machines day and night in order to get the mail through in 24 hours.

U.S.A. FLEET AIRCRAFT SQUADRONS.—Recently there has been a slight change in the organisation of the fleet aircraft squadrons, although the total number of squadrons remains 14 as before.

THE ASIATIC FLEET, which consists of one torpedo and bombing squadron, will have in addition a scouting squadron, which is now in the process of formation in the Atlantic fleet.

THE ATLANTIC SCOUTING FLEET consists of one torpedo and bombing squadron, one scouting squadron and two observation squadrons. The Atlantic fleet has just lost the cadre of a fighting squadron, which has been discontinued, and a scouting squadron is under formation in its place for the Asiatic fleet.

THE PACIFIC BATTLE FLEET consists as before of one scouting squadron, one torpedo and bombing squadron, three observation squadrons and three fighting squadrons—making a total of eight squadrons.

MARINE CORPS AVIATION has three observation squadrons, one scouting squadron and one fighting squadron.

U.S.A. ARMY AIR SERVICE WORLD FLIGHT.—The three American aeroplanes reached India, landing at Calcutta on 26th June, 1924, having successfully crossed the Pacific for the first time in the history of aviation, and covered a distance of 11,125 miles since their start from Seattle on 6th April, 1924.

The kindly and gracious act of the American government in sending squadron leader Maclaren's spare machine from Tokio to Akyab, in order to assist him in his attempt to circle the earth, has been greatly appreciated by all concerned.

ITALY.

The establishment in officers, men and aircraft of the Italian royal air force for the year 1923-24 (1st July to 30th June) is 1,173 officers, 10,142 other ranks, 696 civilian employees and 1,543 machines.

The royal air force academy, which is now at Leghorn, is to be moved to Nisida, Naples, and will become the main source of supply of officers. The course lasts three years, by the end of which time cadets must have obtained three certificates, *i.e.*, as aeroplane pilot, seaplane pilot, and observer.

A decree has recently been published by the commissariat of aeronautics instituting an air force reserve which will include all air force officers not on the permanent active list and all other ranks discharged from the air force. The reserve may be called up for partial or general mobilisation or for training when necessity arises.

The national aeronautical association has published the long-awaited regulations for the training of ex-service pilots, who form the Fascisti airmen's groups. Much discontent has been caused by the delay in formulating the regulations, but training has now begun at three centres. During the period of training the pilots are under military discipline and, when fully trained, will be transferred to the air force reserve.

The first flight from Sicily to Tripoli was carried out at the end of May last, when an air officer flew a Caproni aeroplane from Syracuse to Tripoli in 8 hours.

Several new types of service machines are being brought out. The most interesting of these are the Breda B.A.5 and the C.S.6. The Breda B.A.5, a four-engined night bomber, is a thick wing biplane with two engine nacelles each carrying two Spa 205 h.p. engines. The fuselage provides accommodation for two pilots and one gunner in the nose and a second gunner aft. The anticipated speed is 113 m.p.h., with a useful load of 4,696 lb.

The C.S.6 is a three-engined bombing and torpedo flying boat which is being built at the Trieste naval construction works at Monfalcone. The three Fiat A.12 bis 300 h.p. engines are mounted in line and drive tractor airscrews. Besides the pilot, there is provision for two gunners, one forward and one aft. The useful load will be 4,409 lb.

Fiat have also produced a 700-h.p. torpedo machine, the tests of which are reputed to have been satisfactory.

The Savoia Co. are bringing out a new S.58 fighter flying boat, fitted with a 300 Hispano-Suizo engine.

Work has begun on the N.2 airship, which is to embody many improvements over the N.1.

SPAIN.

Progress is being made in Spain towards the establishment of aircraft factories destined to render her independent of foreign purchases. This state will not be arrived at for some considerable time, and machines are still being bought from Great Britain and France, but the Hispano-Suizo factory at Gandalajara are now building both aeroplanes and engines, and the government works at Quatro Vientos also construct aircraft.

Work has begun towards the formation of a torpedo squadron equipped with Blackburn "Swifts." Only three of these machines are at present in Spain and are being used for training. The authorities intend to form their own scheme of operations and tactics and are preparing a *Handbook of Torpedo Aircraft Operation*. It is hoped that the squadron will be complete with 12 machines and 36 torpedoes by May, 1926.

BELGIUM.

The anticipated reductions in the Belgian Air vote have now been announced, so that the programme of expansion cannot be maintained. The general staff in 1919 drew up a programme whereby in 1925 there should be an air force comprising 356 aeroplanes, of which 100 would be in reserve. At present there are some 227 machines, including reserves, and 80 school machines. Normally, at the end of 1924 there should be 250 machines plus 30 per cent. reserve and school machines available, but it is anticipated that the budget reductions will reduce the number to 200 machines. This has evoked a violent press campaign, and M. Forthomme has been bitterly attacked; but the views of the Ministry of National Defence are that stringent economies have to be effected, and that aviation is not being treated any more drastically than other branches. In fact, as 30 machines surplus to the programme had been purchased in 1923, the reductions are not as serious as they appear.

Considerable difficulty has been experienced in attracting pilots for the air service, owing to the poor rates of pay and inadequate pensions, but it is hoped that with the introduction of better types of training machines, and the spreading of training establishments, this will be remedied.

The service machines at present in use in the air service are D.H. 4s with 260 h.p. Rolls Royce engines; Bristols with 300 h.p. Hispano-Suizo engines; D.H. 9s with 260 h.p. Siddeleys; Ansaldo with 300 h.p. Fiats; Spad-Hispano 220 h.p. and Nieuport-Hispano 330 h.p. Breguets and D.H. 9s have been tried, but are not considered as satisfactory as the D.H. 4s.

Civil aviation continues with very little government support, and is practically controlled by the S.A.B.C.A. Co. This concern is also almost entirely responsible for research work and has a contract with the government for 6,000,000 francs of orders annually.

On 29th May an aerial pageant was held at Antwerp, to celebrate the opening of the new aerodrome at Deurne.

The Belgian Air Navigation Co. have recently bought a new type three-engined Handley Page for commercial work in the Congo, with the intention of having further machines of this type built in Belgium by the S.A.B.C.A.

JAPAN.

A new two-seater torpedo carrying machine has been designed by the Mitsubishi Internal Combustion Engine Co., of Nagoya. Details of performance are not available, but it is reported to be a success. It is fitted with a 450 h.p. Napier Lion.

A flying boat of the F. 5 type crashed near Yokosuka on 5th June. Two officers and three petty officers were killed, and one petty officer was injured.

CHINA.

Considerable numbers of aircraft have been imported into China during the last six months. Most of them are Breguets, which have been delivered to Chang-tso-lin at Mukden.

This war lord appears to have a strong regard for aviation and besides ordering a large quantity of machines, has engaged some French instructors for training his *personnel*.

TURKEY.

CIVIL AVIATION.—Prior to the victory of the Turks over the Greeks in the autumn of 1922, the only civil aviation in Turkey was the bi-weekly service of the French Compagnie Franco-Roumaine between Bucharest and Constantinople (San Stefano aerodrome).

During the negotiations at Lausanne and until early this year the Turks refused to allow the company to carry on this service.

Early in 1924, the German Junker Company entered into negotiations with the Turkish Government for an air service between Angora and Constantinople, and test flights were made in March. They did not apparently satisfy the Angora authorities, who then entered into negotiations with the Compagnie Franco-Roumaine, with the result that in April, 1924, following a series of successful test flights, this company was able to announce the opening of a bi-weekly service between Constantinople and Angora.

It appears that the company have not yet resumed the Bucharest-Constantinople service, but that they are only awaiting the conclusion of an agreement with the Turkish government before doing so.

PERSIA.

MILITARY AVIATION.—The chief of the Persian general staff, general Prince Amanullah Mirzah, while on a mission in France in autumn, 1923, purchased aeroplanes for the Persian army through the French military authorities.

Six of these aeroplanes arrived at Bushire in February, 1924, accompanied by French pilots and mechanics whom Prince Amanullah Mirzah had engaged in France. It is not clear whether further machines have been ordered or whether the six already received comprise the total order.

The French pilots and mechanics are expected to remain only long enough to train Persian *personnel* to fly and to maintain the aeroplanes.

It is believed that certain difficulties have been met with by this mission, and that some of the aircraft have been damaged in attempting to fly by stages to Tehran.

AIR CONTROL OF ARMAMENTS IN EX-ENEMY COUNTRIES.

The disarmament clauses of the various Peace Treaties were carefully drawn up with a view to reducing the potential fighting strength of the countries concerned to the minimum consistent with internal security.

We find in the military and naval clauses that the armies (and navies where they exist) are reduced to a definite strength of men, guns, ships, fortifications, munition factories, etc., which the allies are agreed shall not be exceeded.

The organs of military control therefore have a definite standard, varying in each country, upon which to work.

Air control or supervision on the other hand presents a more complicated problem, the reason for which is not generally appreciated.

The air clauses, unlike the military and naval clauses, merely state that the armed forces of the countries concerned may not *include any military or naval air force*. This, then, is the main difference, which in itself would be comparatively simple, were it not for the fact that the allies have agreed to allow the manufacture and use of aircraft for civil aviation purposes.

It will readily be seen, therefore, that the chief function of the allied body dealing with air supervision is to ensure that, while no military or naval air force is permitted, the legitimate rights of civil aviation are not unduly hampered. That this responsibility is no light one, will be fully appreciated when it is realised that an efficient civil air fleet requires a similar ground organisation such as factories, engineers, mechanics, aerodromes, etc., as a military air force. Apart from the aerial armament, the manufacture of which is forbidden, the main difference between a civil air fleet and a military air force lies in the types of aircraft used, and the training of the *personnel*. It is, therefore, with these two points that the allied organ of supervision is chiefly concerned.

With regard to the latter, no instruction in aerial warfare is permitted and the number of pilots is limited to the legitimate needs of civil aviation.

The type of machine to be permitted, on the other hand, presented a difficulty which the allies attempted to solve by what are known as the "Rules of Differentiation." These rules define what, in the opinion of the allies, constitutes a military aircraft, and technical knowledge of a high standard is required to decide whether a machine is ruled out for civil purposes by the rules or not.

The foregoing remarks will show that military and air control are in effect entirely different problems, requiring in each case special knowledge and methods of procedure.

AIRSHIPS.

AMERICA.—When the conversion of the U.S.S. "Patoka" into a mother vessel for the rigid airship "Shenandoah" is complete, the latter will have a mobile base which may prove to be of great value to the airship during operations with the U.S.S. navy.

The "Patoka" is rated as an oil tank vessel of 16,800 tons, and her reconstruction, which has already started, will involve the permanent fitting of a mooring mast, the installation of workshops, storage for helium gas, spare parts, gas bags, etc., and quarters for the officers and crew of the airship. It is intended that the "Patoka" will accompany the fleet to sea and act as a refuelling and minor floating repair base for the "Shenandoah" and will be employed for towing the airship when occasions arise. Apart from increasing the all-round efficiency of the "Shenandoah" for naval requirements, the advantages of a suitable mobile mooring mast for extended cruises by the airship are very obvious.

Z.R.3, the rigid airship being constructed for America at Friedrichshafen, is still held up, due to trouble with her new engines. With the exception of the latter the ship is ready for trials; but when these will take place, depends on the results of the engine tests which are now being carried out.

ITALY.—The new semi-rigid airship "N.1" recently made a flight of 18½ hours. The distance covered was 906 miles at an average speed of 47·2 m.p.h. The maximum speed developed was 50·3 m.p.h., using three engines, which were never

fully opened out. Petrol consumption was 535 gallons, and the ship landed with over 300 gallons still in her tanks. The maximum height flown at was 2,500 ft. It is thought that this ship will be used for commercial purposes, as she has a well-designed passenger saloon, capable of accommodating 20 people.

PRINCIPAL ADDITIONS TO THE LIBRARY.

May, June and July, 1924.

THE NAVY IN THE DARDANELLES CAMPAIGN. By Admiral of the Fleet Lord Wester Wemyss, G.C.B. 16s. 8vo. London, 1924.

THE TRUTH ABOUT GORDON TARTAN. By J. M. Bullock. Extract from the *Scottish Historical Review*, April, 1924. (Presented by J. M. Bullock.)

STUDIES IN POLISH LIFE AND HISTORY. By A. E. Tennant. 10s. 6d. 8vo. (G. Allen & Unwin, Ltd.) London, 1924. (Presented by the Publishers.)

BURMA, FROM THE EARLIEST TIMES TO THE PRESENT DAY. By Sir J. G. Scott, K.C.I.E. Illustrations and Maps. 21s. 8vo. (T. Fisher Unwin, Ltd.) London, 1924.

EGYPT AND THE ARMY. By Lieut.-Colonel P. G. Elgood, C.M.G. 16s. 8vo. London, 1924.

A MILITARY ATTACHÉ IN THE BALKANS. By Lieut.-Colonel the Hon. H. D. Napier, C.M.G. 21s. 8vo. London, 1924.

FEDERAL AND UNIFIED CONSTITUTIONS. By A. P. Newton. 15s. 8vo. (Longmans Green & Co.), 1923. (Presented by the Publishers.)

THE UNIFICATION OF SOUTH AFRICA. 2 Vols. By A. P. Newton. 25s. 8vo. (Longmans Green & Co.), 1924. (Presented by the Publisher.)

THE FREEDOM OF THE SEAS IN HISTORY, LAW AND POLITICS. By P. B. Potter. 10s. 6d. 8vo. (Longmans Green & Co.), 1924. (Presented by the Publishers.)

BUILDING THE AMERICAN NATION. By N. M. Butler. 10s. 6d. 8vo. (Cambridge University Press), 1923. (Presented by the Publishers.)

THE STORY OF THE NATIONS: BULGARIA AND ROUMANIA. 15s. 8vo. London, 1924.

SPORT AND SERVICE IN ASSAM AND ELSEWHERE. By Lieut.-Colonel A. Wilson. 18s. 8vo. London, 1924.

LA GUERRE ROUMAINE. 1916-1919. Par M. Djuvara. 8vo. Paris, 1919.

THE FRENCH REVOLUTION IN SAN DOMINGO. By T. L. Stoddard. 8vo. Cambridge, 1914.

LA ROUMANIE DANS LA GUERRE ET DANS LA PAIX. Par N. Basileco. 2 Vols. 8vo. Paris 1919.

- THE BLACKWALL FRIGATES. By B. Lubbock. 16s. 8vo. Glasgow, 1922.
- JAMAICA IN 1924. By F. Cundall, F.S.A. 8vo. Kingston, 1924. (Presented by the Author.)
- THE HANDBOOK OF JAMAICA FOR 1923. By F. Cundall, F.S.A. 8vo. Jamaica, 1923. (Presented by the Author.)
- MEMOIRS OF WILLIAM HICKEY, 1749-1790. Edited by A. Spencer. 3 Vols. 8vo. London, 1922.
- NOTES ON IRON AND STEEL. By Brig.-General R. K. Bagnall-Wild, C.M.G., etc. 1s. 6d. 8vo. H.M. Stationery Office, 1924. (Presented by the Publishers.)
- THE HISTORY OF LONDON. By W. Maitland. Maps and Illustrations. Folio. London, 1739. (Presented by Capt. W. E. Southgate.)
- ESQUEMELING, THE BUCCANEERS OF AMERICA. Translation of 1684-5. Revised and edited by W. S. Stallybrass. 12s. 6d. 8vo. London, 1924.
- THE ADVENTURES OF A NAVAL PAYMASTER. By Paymaster Rear-Admiral W. E. R. Martin, C.M.G. 16s. 8vo. London, 1924.
- VIE DE MONSIEUR DU GUAY TROUIN. Ecrite de sa main. 8vo. Paris, 1922. (Presented by Capt. A. Hilliard-Atteridge.)
- The following two Books are presented by Colonel J. Brown, C.B.E., D.S.O., T.D., J.P., D.L. :—
- A MANUAL FOR VOLUNTEER CORPS OF CAVALRY. 8vo. London, 1803.
- THE BRITISH SOLDIER'S GUIDE AND VOLUNTEER SELF-INSTRUCTOR. 8vo. London, 1803.
- LADY NUGENT'S JOURNAL: JAMAICA ONE HUNDRED YEARS AGO. Edited by F. Cundall, Esq., F.S.A. Illustrations and Maps. 8vo. (Adam & C. Black) London, 1901. (Presented by F. Cundall, Esq., F.S.A.)
- THE GERMAN CAVALRY IN BELGIUM AND FRANCE, 1914. By Lieut.-General M. Von Poseck. Translation. 8vo. Berlin, 1923.
- REMINISCENCES, 1848-1890. By Major-General Sir F. Howard, K.C.B., K.C.M.G. 15s. 8vo. London, 1924.
- EAST OF PRAGUE: IMPRESSIONS OF CZECHOSLOVAKIA. By C. J. C. Street. 10s. 6d. 8vo. London, 1924.
- THE RIFLE BRIGADE CHRONICLE, 1923. Edited by Major H. G. Parkyn, O.B.E. Illustrations. 8vo. London, 1924. (Presented by the Committee of the Rifle Brigade Club.)
- TALES FROM TURKISTAN. By Stor Løb. 6s. 8vo. (William Blackwood & Son) London, 1924. (Presented by the Publishers.)
- THE ASSAULT ON MOUNT EVEREST, 1922. By Brig.-General the Hon. G. G. Bruce, C.B., M.V.O. Illustrations. 8vo. London, 1923.
- THE DIPLOMACY OF NAPOLEON. By R. B. Mowat. 16s. 8vo. London, 1924.

- DAYS THAT ARE GONE.** By Colonel B. de Sales la Terrière. Illustrations. 24s. 8vo. London, 1924.
- POLICY AND ARMS.** By Lieut.-Colonel C. à Court Repington. 18s. 8vo. London, 1924.
- SPUNYARN, STRANDS FROM A SAILOR'S LIFE.** By Sir H. F. Woods, K.C.V.O. 2 vols. 36s. Illustrations. 8vo. (Hutchinson) London, 1924. (Presented by the Publishers.)
- THE PRACTICE OF NAVIGATION AND NAUTICAL ASTRONOMY.** By Lieut. H. Raper, R.N. 21st Edition. Revised and brought up to date by H. B. Goodwin, M.R., F.R.A.S., 8vo. London, 1920. (Presented by Commander J. F. Ruthven.)
- THE AUTOBIOGRAPHY OF GENERAL SIR O'MOORE CREAGH, V.C., G.C.B., G.C.M.G.** Illustrations. 24s. 8vo. London, 1924.
- The five following Books are presented by Brig.-General W. C. Staveley, C.B. :—
- RULES AND REGULATIONS FOR THE FORCES.** 1803.
- RULES AND REGULATIONS FOR THE FORCES.** 1805.
- THE LIFE OF FIELD-MARSHAL THE DUKE OF WELLINGTON.** By Colonel J. M. Tucker. 8vo. London, 1846.
- THE BATTLE OF WATERLOO FROM THE TRADITIONS OF THE SCOTS GREYS AND HIGHLANDERS.** 4mo. Glasgow, 1850.
- GENERAL ORDERS, ETC., OF LIEUT.-GENERAL SIR C. NAPIER BETWEEN THE YEARS 1846-1850.** By Lieut.-Colonel E. Green. 8vo. N.P. 1850.

REGIMENTAL HISTORIES.

- THE RANGER'S HISTORICAL RECORDS, FROM 1859 TO THE CONCLUSION OF THE GREAT WAR.** Edited by Capt. A. V. Wheeler-Holohan and Capt. G. M. G. Wyatt. Illustrations. 8vo. (Harrison & Sons) London, 1921. (Presented by Captain A. V. Wheeler-Holohan.)
- THE HISTORY OF THE NORFOLK REGIMENT.** By F. Loraine Petre, O.B.E. Vol. 1. 1685-1914. Illustrations and Maps. (Jarrold & Sons, Ltd., Norwich.) (Presented by Colonel W. H. Besant.)
- THE WEST YORKSHIRE REGIMENT IN THE WAR, 1914-18.** By E. Wyrall. Illustrations and Maps. 8vo. (John Lane.) London, 1924. (Presented by the Author.)
- THE UNBREAKABLE COIL.** By Major A. L. K. Anderson. 1s. 6d. 12mo. (Whitehead Bros.) Wolverhampton, 1924. (Presented by the Author.)

REVIEWS OF BOOKS.

The Queen's Own Royal West Kent Regiment, 1914-19. By CAPTAIN C. T. ATKINSON. (Simpkin, Marshall, Hamilton, Kent & Co.) 7s. 6d.

To present in one volume at a reasonable price the history of a whole Regiment of the Line during the great war is an undoubted achievement. It is much to be

commended because the complete record is thus placed within reach of so many of the survivors and the relatives and friends of those who served, even where the personal interest extends—as it so often does—to several Battalions at different periods of the war. There is, perhaps, no other form in which the true purpose of regimental history can be fulfilled.

All concerned in the production of this book are to be congratulated. Captain Atkinson, despite his modest disclaimer, has produced a chronicle not unworthy of the Queen's Own which had no less than eleven battalions on active service, and added to its reputation on the western front, and in Mesopotamia, Gallipoli, Italy, Palestine, India and Afghanistan.

Naturally there is no space in which to pursue the "domestic" career of any battalion, but the reader finds an adequate account of every action in which a unit of the Queen's Own was engaged. The list is long, beginning with the fighting at Mons in 1914, where the 1st battalion was engaged, use being made of Bloem's "Vormarsch" account, of which a full translation appeared in these pages some years ago. Then follow the retreat, the Marne and the Aisne, La Bassée and Neuve Chapelle, and all the general actions of the later years in France and Flanders, the narrative broadening as the service battalions of the Queen's Own take their places in the battle line. The fighting in other theatres of war has its place in chronological order, and Captain Atkinson always contrives to throw sufficient light on the whole plan of operations for the general reader to appreciate the real significance of the task assigned to the battalion concerned.

To show the completeness of the work, mention must be made of the chapters which deal with the reserve battalions at home and the appendix describing the manifold activities of the dépôt. The roll of honour prints the names of all the fallen; a very lengthy list of honours, rewards, and decorations includes five Victoria Crosses; other pages contain the names of those mentioned in despatches; and there is a summary of units of the regiment, giving a list of their commanding officers. The portraits are of the many distinguished battalion commanders and, of course, the Victoria Cross heroes.

The descriptions of the fighting are made clear, and pages of written explanation are saved by the profusion of sketch maps. Though these are very roughly drawn and reproduced, criticism is disarmed in face of the price of the book. Marginal notes and references to battalions are useful as far as they go, but the author—skilled in the art of compression as he is—might well have contrived sufficient space for an index.

There is a "foreword" by Lieut.-General Sir E. A. H. Alderson, the colonel of the Queen's Own, and Captain Atkinson's preface is almost an essay in itself.

W. M.

A Field Artillery Group in Battle. By COLONEL W. H. F. WEBER, C.M.G., D.S.O., *p.s.c.*

This tactical study is based upon the operations of the 2nd brigade R.F.A. during the later phases of the war, and appeared by instalments in the journal of the royal artillery over the period 1919-1923. Reprinted by permission of the Royal Artillery Institution, it is now made accessible to a wider circle.

At this stage it obviously needs no recommendation to gunners, but it may well be read with profit by officers of other arms of the service. The 2nd brigade, R.F.A., was the colonel's own, though, for the most part, it was included in the group which he commanded, and which supported the 6th division infantry at Cambrai, 1917, during the German Offensive of March and April, 1918, and throughout the "Hund-

red Days" which broke the German resistance in the field. Thus Colonel Weber is able to draw upon his own experience as a commander of a field artillery group in the surprise, in the defence, in the retreat, and in the general advance. Of the last named he treats in two phases, first the "approach to a fortress"—the Hindenburg line—and then the war of movement.

The plan followed in every case is to give a full topographical description; orders and schemes in detail; maps based upon those in use at the time; and then a description of events day by day from as many points of view as possible, followed by appropriate comment. General conclusions form the subject of a separate chapter.

Colonel Weber is never dogmatic. He wishes "to place on record a set of active experiences, before we again become dependent upon theory for training." As regards the parts which will be played in the future by the aeroplane, the tank, increased mechanical transport, chemicals, and so forth, he does not presume to prophesy, but is only concerned in providing a "framework on which to consider the practical effect of these developments on field artillery in battle." The great problems of artillery control and co-operation are given due prominence in every phase of the operations described. Principles remain, although the method of their application varies with the type of warfare and the progress of invention, and all officers are concerned in these questions to which Colonel Weber's expression of the field artillery spirit and record of the latest active service experience brings much material for further thought and discussion.

The deductions made in the chapter called "The Transformations of War" are sound and suggestive, although, in the light of what we have learned from enemy sources, the importance of the "Riga manœuvre" is wrongly estimated. It is now beyond doubt that the feeble resistance of the Russians made the German success inevitable. And if, in the absence of tanks, the enemy did rely "primarily upon his infantry" in the spring of 1918, it was chiefly in the command and employment of the artillery that the "Riga manœuvre" proved of value as a rehearsal.

Incidentally the book goes far to provide a history of the 2nd brigade R.F.A. for the period with which it deals: and the author's notes of personal experience, are often amusing and always of interest. A little more care in the proof-reading would have been an advantage.

W. M.

Federal and Unified Institutions. By A. P. NEWTON, M.A., D.Litt., B.Sc., F.S.A. (Longmans, Green & Co.) 15s.

This is a collection of documents relating to federal and legislative unions. Primarily intended for the use of the students in the honours school of history in the University of London who are working in the special subject "The Unification of South Africa," all those who are interested in the study of political institutions will be glad to have the texts of these documents assembled in one convenient volume.

In his introduction Dr. Newton, who is the Rhodes Professor of Imperial History at the London University, traces the descent of modern federal unions in Europe from the leagues of the middle ages. Thus we come to the Hanseatic league and follow the evolution of the United Provinces of the Netherlands through many vicissitudes until the independence of Belgium, declared in 1830. A brief outline is provided of the constitutional histories of Switzerland and Germany, and of the Latin republics of America. It is shown that in the English-speaking countries federalism has been brought about by the same causes, influenced by the English constitutional

theory of the eighteenth century. There is a sketch of the development of federal government in Canada, and in the American colonies until and after they became the United States of America.

The documents include the texts of the act of union (England and Scotland) of 1707; the constitution of the United States; the act creating the dominion of Canada, 1867; the constitution of the Swiss confederation, 1874; the act establishing the commonwealth of Australia, 1900; the act establishing the union of south Africa, 1909; and the constitution of the German republic, 1919. In some cases extracts from the speeches of statesmen concerned in the setting up of the new constitutions are included in order to show what it was desired to achieve. There is a very good index.

W. M.

The History of the Norfolk Regiment, 1685-1918. By F. LORRAINE PETRE, O.B.E. Vol. I. (Jarrold & Sons.)

The Norfolk regiment is not the least distinguished corps in the British army, and the story of its long career is an interesting, and often a thrilling, one. This volume covers the period from the raising of the regiment in 1685 to the eve of the great war.

Its first experience of active service, the campaigns by which William III. subdued Ireland, brought few opportunities for distinction. Then, instead of sharing in Marlborough's triumphs, Steuart's Foot—it was not yet known as the 9th, though Mr. Petre finds it convenient to use the numeral—left Flanders for the peninsula, where it suffered two disasters through no fault of its own. During the eighteenth century, indeed, the regiment met with many misfortunes, for, after serving with real distinction against the American colonists, its remnants were obliged to surrender with Burgoyne at Saratoga: and two battle honours represent two long tours of duty in the West Indies and a lengthy death-roll from disease. But on landing in the peninsula again the 9th added to its reputation at Rolicca and Vimiero and was in the retreat with Moore to Corunna. After the ill-fated Walcheren expedition, fresh laurels were gained with Wellington in Portugal, Spain and France.

The regiment's brilliant record of service in India includes the first and second Afghan wars and the first Sikh war, and it also fought before Sebastopol, enduring the hardships of two Crimean winters. In South Africa, 1900-02, the 2nd battalion was at Paardeberg, and generally maintained the reputation of the regiment for arduous service, efficiently performed.

Mr. Petre, who acknowledges his indebtedness to the R.U.S.I., has obviously been very conscientious in collecting and consulting documents. He uses his material well upon the whole, although the descriptions of some of the actions—assisted by rather indifferent sketch maps—are not very easy to follow. And he would have done better to have made this volume absolutely self-contained. The bibliography includes the documents and books consulted for the second volume, and the preface is intended to serve for both. The appendices to which references are made are not included, being kept back, it is presumed, to go at the end of the book. Thus the reader who wishes to turn to the sketches of the careers of such distinguished colonels of the regiment as Steuart and Cameron, to the account of the origin of the Britannia badge, or to the notes on changes in the uniform and appointments, must perforce wait until the second volume appears. This is a just cause for complaint. A little more care, too, would have ensured con-

sistency in the spelling of place names both in text and maps, and the correct quotation of the lines from Wolfe's poem on the burial of Sir John Moore.

The illustrations, excellent reproductions of portraits, prints, photographs, and pictures in colour, are admirably selected and of great interest. "Havana, 1762," is of particular merit. It is to be hoped that a portrait of General William Steuart, colonel of the regiment from 1689 to 1715, will eventually be discovered, so that a reproduction can be inserted in the place left vacant for it.

Such a nicely produced volume deserves to be better and more strongly bound. It is not calculated to stand much handling. The index is good.

W. M.

The West Yorkshire Regiment in the War, 1914-18. By EVERARD WYRALL. Vol. I., 1914-16. (The Bodley Head.)

As Mr. Wyrall is announced as having several other regimental histories in preparation, this volume is of particular interest. By the end of 1916 no less than fifteen battalions of the West Yorkshire regiment had seen active service. The Prince of Wales's Own were represented on the Aisne, and in the battle of Arras, 1914; in the battles of Neuve Chapelle and Loos, 1915; and in the long drawn out battles of the Somme. Throughout this period West Yorkshire battalions had also fought in many actions of less importance and accumulated an immense and varied experience of trench warfare in France and Belgium. One battalion had served in the Gallipoli peninsula.

There is, then, a fine story to be written, and the author has, at least, planned his work well. He has made a careful study of the war diaries, from which he quotes with great freedom, and has collected much of interest from other sources. It is, indeed, because these documents are so often allowed to speak for themselves that the narrative lacks distinction.

It is always difficult to maintain a chronological sequence of events while the different units, up and down the battle front, are in and out of action, but here the story of a battalion is sometimes brought up to date by a lengthy footnote which does not make for easy reference. Great care has been taken to explain the general scope and intention of every important operation in which a West Yorkshire battalion was engaged, but the references to von Schlieffen's plan are quite misleading. There is also some criticism of British policy—itself out of place in a regimental history—which is based upon insufficient information. And it is surprising to find that, although ample space has been found for quotation from official despatches, there is no account of the raising, equipping, and training of the new army battalions of the regiment.

A little more care in the revision of the text would have avoided such errors as "d'Esperay," "Pendent Copse," and "the village of Bernafay."

The maps have been very carefully done, and the pictures are admirable illustrations of warfare on the western front, although they possess no particular regimental interest. A Roll of Honour for the years 1914-16 includes the dead of all ranks of all battalions. There is an adequate index.

W. M.

The Spencer Papers, 1794 to 1801. Edited for the Navy Records Society; Vols. I. & II., 1913 and 1914, by SIR JULIAN S. CORBETT; Vol. III., 1924, by REAR ADM. H. W. RICHMOND.

The Navy Records Society has to a considerable extent concentrated its attention on the great French wars; the question has indeed even suggested itself

whether it would not be preferable that it should for a time forsake this comparatively well known period of naval history, and undertake the elucidation of others concerning which much less information has been made available. The answer to any such question lies in these volumes. No one who reads them with care will doubt for a moment that our professed knowledge of the period has hitherto been very far from complete: the course of events, and their detail, were either already known, or easily ascertainable; but the hidden forces at work, the co-ordination of cause and effect, were in great measure subjects for conjecture rather than for authoritative statement. It can, in fact, be confidently asserted that these volumes, both in virtue of the important nature of the documents printed, and of the masterly comments of their editors, stand in the very first rank of the many valuable contributions to history which the society has made.

Lord Spencer succeeded the Earl of Chatham as first lord in December, 1794, and continued in charge of the Admiralty till February, 1801, thus holding office for the unequalled period of over six years of war-time. Not only was this a period of active unlimited war, it was also a period of much complexity. While the magnitude of the war taxed our resources severely, its inherent difficulties put a severe strain on the ability and moral courage of those to whom its conduct was entrusted.

From these papers, which are the "private office" papers of the first lord, we see the inner working of the machine. We can understand that Pitt's so-called "sugar island" policy was in some degree inevitable, and that it was founded on reasoning, both military and economic, which was at worst very specious. The support of the French royalists by overseas expeditions was logically still more sound; yet it too failed, like the West Indian project, from no default of the navy. With these more or less obvious methods ruled out by the hard test of experience, what was to be the guiding principle of the naval war? Was the fleet to be used to neutralise the enemy's fleet, by blockade, and by intercepting the supplies of naval stores without which he could equip no armament? How best could it be used to co-operate with our allies in northern Italy? How to ward off the danger of invasion which threatened in 1797?

These were the difficulties with which Lord Spencer had to cope in the early years of his administration. He found himself at the parting of the ways, forced to decide whether the fleet should be used for defensive or for offensive war. The decision was for the offensive; and though blockades, especially those of Brest and the Texel, figure as main features of the war, yet they were not allowed to preclude offensive action elsewhere. On the contrary, their purpose was to make offensive action possible by making it reasonably certain that the enemy would not be able to interfere. So from the date of the victory at the Nile, the Mediterranean fleet became an offensive force, and the function of the fleet without the straits was to ensure that its proceedings should be undisturbed. Thus we see the importance of Bruix's incursion into the Mediterranean, which, though nothing definite resulted from it, yet had the merit of thoroughly upsetting for the time the whole British plan of campaign.

The projects or attempts against the enemy's bases, against Brest, the Helder and Ferrol, pass commonly with inadequate notice; chiefly, no doubt, because the measure of success achieved did not equal the effort, but also because it is easy to fail to recognise in them a systematic policy of offence, the purpose of which was the destruction of the enemy's main fleets. And it is worth noticing that of this uncompromising policy of offence the most prominent advocate was Dundas, the Secretary-of-War, a man whose claims to strategical insight have been disallowed on military grounds. The vigour, and frequently the sound reasoning, of his letters

will come as a pleasant surprise to those who have been disposed to regard him as the incubus of the government, and will dispose them to agree with the editors that our estimate of him needs some revision. "He had, at least on occasion, an eye for the great lines of a war, and kept, at any rate, a stout heart that would not despair of his country." (I., xvi).

The introductory notes throughout are short but illuminating; and it will be noticed how the experience of the late war adds force and authority to Admiral Richmond's comments. The selection of the documents appears to have been most judiciously made; indeed, the only objection that could be raised is that, in planning the work, Sir Julian Corbett decided to omit altogether those papers which refer to purely administrative questions. In the circumstances, this omission was perhaps inevitable; yet it is permissible to regret it. For Lord Spencer's administration was very active in all branches of the service; and those who have worked much among the Navy Board papers for this period know well that the new spirit was permeating the civil and technical services in no less degree than St. Vincent's discipline was transforming the fleets at sea.

On the question of editing, two points arise. In the first two volumes there are many more footnotes than in the third, Sir Julian Corbett's system having been to insert in a note a short introduction of every man of importance who is mentioned. As most readers will not have a biographical dictionary at hand, this system is clearly good. That Admiral Richmond did not follow it, is, no doubt, to be ascribed to the exigencies of the service, which allowed him barely time to complete his task. Another point is that there are not enough maps. There is in Vol. III. an excellent one of Belleisle, though the reduction makes the place names difficult to read. In such a work maps, especially where conjoint operations are described, are invaluable; and probably more readers, for the sake of clearness, would prefer one re-drawn for the particular purpose to a reduced reproduction of an old one.

Each volume has a good index, which, in Vol. III. in particular, goes some way to supply the deficiency of short personal footnotes. The series is to be completed in a fourth volume, the publication of which is promised for the autumn.

L. G. C. L.

The Official History of the War: Seaborne Trade. 3 vols. By C. ERNEST FAYLE; Vol. I., 1920; Vol. II., 1923; Vol. III., 1924. (John Murray.)

The most salient fact in the maritime side of the great war was the shortage of tonnage. In its opening stages the war was conducted apparently on the assumption that the supply of merchant ships was boundless: that it was a pool which could be drawn on freely for all public services, and so inexhaustible that the remainder would suffice for the economic needs of the empire. If only the merchants would face the war risks, all would be well; and to induce them to do so nothing more elaborate was necessary than the putting into effect of the state insurance scheme. Naval action would proceed on lines already determined, subject to such modifications as circumstances might dictate.

To judge from the course which the war took in its early months, it would appear that in the main the Admiralty had read its history aright. As soon as the first disturbance and alarm were over, commerce appeared to be settling down to a regular routine. The focal points of the trade routes—with the exception of Colombo, for which omission we paid a fairly heavy price—were occupied in adequate force. There were few captures of British ships, and, on the other hand, the enemy merchant fleet was entirely swept from the sea. Men began to wonder at the supineness of the German Admiralty.

One of the earliest indications of a difficulty which was to make itself progressively felt was noticed when the movement of Indian troops began, at first to Egypt, afterwards to Europe. Tonnage for transport purposes had to be diverted from other services for which it was badly needed. This difficulty of providing transport both for the troops themselves and for their supply, eventually became one of the greatest of the many with which we had to cope. The appropriation of tonnage for naval and military services was enormous, the drain, of course, being increased by every fresh undertaking that involved the movement and supply of troops. Mr. Fayle gives (Vol. III., pp. 474, 475) tables showing the employment of allied and neutral tonnage on 31st October, 1918. From these it appears that at that date 29.5 per cent. of British tonnage was employed in naval or military service, while of American tonnage no less than 49.3 per cent. was employed in the same way. Of the total tonnage available, whether owned by allies or by neutrals, 24.2 per cent. was devoted to naval and military services.

It would have been of value had the author differentiated between the two services, showing what tonnage was appropriated to naval and what to military service. Also corresponding tables showing similar details for the various critical dates during the war would have been of great interest; but such other information as is given (notably at Vol. II., p. 337) is not in the same form and is not readily brought into comparison. This, at any rate, is clear, that the distress caused by the submarine campaign against merchantmen would have not been nearly so acute had the whole, or even nearly the whole, of the tonnage been available for mercantile services. That, of course, could never be; the nearest that a maritime power could approach to such a condition would be by reducing its oversea commitments to the utmost degree possible.

To say this is tantamount to raising the question whether an insular power has any real business to intervene on a great scale in a continental war. Is it possible for any maritime power, whether insular or not, to employ at once forces on the great scale both by land and sea? We did it, in 1914 to 1918; but the effort of so doing brought us for a considerable time into a danger so acute that had it been contemplated it almost certainly would not have been incurred. On a smaller scale we did something similar in William III.'s war; and thereafter we carefully and explicitly avoided doing the like again. Dundas's speech of 25th March, 1801, may be cited as an enunciation of what had become the traditional principles of a British government for the conduct of war.

It would seem that these principles had, in the years before 1914, been forgotten. Perhaps they had been overlaid by recollections of the peninsular war, which was on a great scale certainly, but was undertaken at a time when the struggle for the command of the sea had already been decided. It is certain that, when next we are engaged in a great continental war, the same problem will again arise. Those to whom its solution will fall will have an enormous advantage in having at their disposal the wealth of material, closely packed and carefully reasoned, collected by Mr. Fayle in these volumes. There will be no excuse for them if they neglect the important factors of man power, commerce, and tonnage. It should remain obvious that if you put almost your whole available man power into khaki, and employ 30 per cent. of your tonnage to carry and feed them, you are likely, on the one hand, to find a shortage of tonnage to import essential supplies, and of shipwrights to replace lost tonnage; and, on the other hand, that your exports, which should be supplying you with the sinews of war, must suffer a very grave decline owing to the withdrawal of labour from productive industry.

We have most of us read Mahan: most of us apparently in and before 1914 either forgot, or did not understand, his thesis that the component parts of sea-power

are many and various. And yet we did lip service to the doctrine that sea-power is the natural defence of an insular empire.

Mr. Fayle's book is thought-provoking in a high degree. It does not discourse on principles of war: it merely gives authentic facts. But these facts are so tremendous that they contain within themselves a whole body of doctrine. They expose the real nature of war at sea, revealing it as being waged by economic and diplomatic action in an even higher degree than by armed ships.

L. G. C. L.

The Marine Chronometer By LIEUTENANT-COMMANDER R. T. GOULD, R.N. (ret.). (J. D. Potter, The Minories, London.)

It is only by comparing this work with its predecessors that one can get a just idea of the service which lieutenant-commander Gould has done to scientific literature. The only histories of the marine chronometer which had previously been published were portions of works of much larger scope; and none of them gave a synthetic account of the problem of finding longitude at sea, or of the method by which it was solved. In Ferdinand Berthoud's "*Histoire de la Mesure du Temps*" there was a chapter on marine chronometers; Doctor Pearson wrote an article on the chronometer in Rees's encyclopædia, published between 1810 and 1820; and Britten's work on old clocks and watches devoted a considerable amount of space to marine timekeepers. But none of these authors attempted what lieutenant-commander Gould has actually achieved. After stating the general problem which confronted discoverers in the sixteenth century, he has traced the evolution of timekeeping mechanism from the Nuremberg egg—a pocket watch of the sixteenth century—to the modern chronometer. He has illustrated his book with photographs of the most famous types of watch which made their appearance during the history of the long development that he describes; and to these he has added a set of mechanical drawings of his own compilation. There is not a step in the story which he has traced that he does not illustrate like an artist or describe like a scholar. Every technical expression is explained at its first appearance, and a reader can start the book with no knowledge of the subject, and lay it down with a tolerable education in horological science.

So long as trading voyages were not carried beyond the waters of Europe, navigators were not seriously troubled by the problem of finding longitude. Accurate cartography was impossible; but the routes along which traders passed were mainly coastal. The discovery of America, and the development of naval construction which followed it, brought home the urgency of the problem to every maritime nation; and large rewards were offered from then onwards to any person who could discover some means of ascertaining a ship's longitude during an ocean voyage. It was not until the middle of the eighteenth century that the problem was solved, almost simultaneously, by an Englishman, John Harrison, and by a Frenchman, Le Roy. Harrison began life as a village carpenter, and acquired his mechanical education simply by his own efforts; his invention of the famous time-pieces which lieutenant-commander Gould describes, seems like a creation *ex nihilo*. Le Roy was a man with great standing in the horological profession, who had followed the progress of mechanical invention during the eighteenth century in all its details. As *horologer du roi*, he had doubtless inspected the mechanical toys and automata which delighted the brilliant company at Versailles. One would like to give Harrison's invention priority over that of the Frenchman, not from national vanity, but out of respect for his marvellous conquest of difficulties; but Lieutenant-Commander Gould's testimony is decisive. Whatever credit may be due

to Harrison for inventing a watch which would keep accurate time at sea, Le Roy must be regarded as the father of the modern chronometer. He it was who devised a mechanism that differs in no essential from the chronometer which is used in every ship at sea.

This is, in its broadest outline, the salient feature of the history that Lieutenant-Commander Gould has explored in every detail; and it can be said of him, without the slightest fear of exaggeration, that he has made a contribution to knowledge which will be studied with admiration so long as the history of human achievements attracts the curiosity of mankind.

A. C. B.

Merchant Ship Types : A Survey of the Various Units engaged in Water Transport of People and Merchandise. By A. C. HARDY. (Chapman & Hall). 1924.

The author tells us in his preface that this book has been written not alone for students of naval architecture and marine engineering, but for "all those who are interested in the sea and ships." Professor Byles, introducing it in a pleasant "foreword," ventures to think that "in this sea-girt island every person is interested to some extent in merchant shipping." In one sense this is true enough: but whether every such person takes the pleasure he should in acquiring a reasonably accurate acquaintance with the *matériel* of the great service upon which so much of his well-being depends is another matter. For all who do, the information which Mr. Hardy has packed into this volume, and illustrated by plans and drawings and a well-chosen selection of photographs of typical vessels, will be a welcome guide.

It is not the least valuable feature of the book that throughout the author makes it clear how the evolution of the various types of merchant ships is conditioned by economic, navigational, and climatic circumstances, as well as by the special function each of them is intended to perform. With the aid of Mr. Hardy's pages, "all those who are interested in the sea and ships" should be able without much difficulty to find a reason for most of the peculiarities of design that may strike them in the merchant ships they come across. We refer, of course, to peculiarities less outstanding than those which are manifest to the eye of the veriest landsman in such highly specialised and unmistakable craft as oil-tankers, ice-breakers, train-ferries, dredgers, cable-layers, and ocean-going tugs: though all these will be found portrayed and described in this book.

On the other hand, there is noticeable some little excess of scientific zeal for classification, a process to which the mercantile marine as a whole does not readily lend itself. Quite at home in describing the diversity of types he knows so well, the author is not nearly so happy when attempting to group the less specialised kinds of merchantmen under headings—compelling them, as it were, to come in and be classified. He is not unconscious of his difficulties, for when dealing thus with the "intermediate" liner, he is constrained by them to coin so desperate a phrase as "degrees of intermediocrity" to express the constantly varying resemblances of such vessels to the fast passenger liner on the one hand and the cargo carrier pure and simple on the other; and even of these extremes it has to be admitted that the first carries some cargo, whilst the second occasionally has a passenger or two. But, after all, this, and a few other surprises in terminology that the book affords, might well be put down to thoroughness overreaching itself.

Mr. Hardy occasionally drops into history. There is some account of early cross-Channel steamers, and a reference to the appearance of the old north-east coast paddle-tug with a beam trawl upon her quarter in the early 'eighties—a phenomenon due to lack of her legitimate work at the time to which some authorities trace the beginnings of steam trawling. We should have been glad to have had more of these backward glances, and to have found the index of ships named in the text and tables very much more complete than it is.

W. S.

The Life of Sir William White. By FREDERICK MANNING. With an introduction by the Right Hon. Lord George Hamilton. (London, 1923).

The career of a great naval constructor, whose first youthful job was concerned with the cutting down of a wooden sailing three-decker into a two-decked screw battleship and who yet lived to take part in the controversy which the design of the *Dreadnought* called forth early in the present century, could not perhaps have been adequately dealt with on a small canvas. This book is long: it is also characterised by what may seem to untechnical readers a certain monotony—a quality probably in the circumstances equally unavoidable since it is evident that Sir William White's profession *was* his life. Mr. Manning's pages are a storehouse of information about the development of the fighting ship, the technical discussions which at every stage accompanied that development, and the dockyard reforms that made it possible during the last quarter of the nineteenth century. As regards the particular branch of applied science to which Sir William White devoted his life, those years, of course, were a rather wonderful period: and we imagine that this memoir will be primarily useful to historical students who may wish to rub up their remembrance of them.

This is not to say that the man himself is lost amongst the details of ships and the departmental memoranda and similar documents with which these pages are so plentifully besprinkled. There is an interesting early letter of White's, written when he was about nineteen years old from his lodging in the Fulham Road, giving his parents a commentary upon a sermon of Spurgeon's he had just heard, and expressing his approval both of the service and of the deportment of the congregation. We have always thought that to take oneself very seriously is more important to success in life than any amount of brains, considered alone: but when, as in this case, the fortunate attitude is combined with great gifts it is certain to carry its owner a long way. The combination carried Sir William White from success to success until the beginning of the year 1900, when the instability of the new "Victoria and Albert," built from his design, was made evident by an accident. The construction of such a vessel was altogether outside his long experience—perhaps even more remote from his *métier* than criticism of Spurgeon's sermon on "grace" had been very many years before. He had, however, tackled it, and he frankly accepted full responsibility for his failure: but from the disproof of his infallibility involved, he never wholly recovered, and, indeed, Lord George Hamilton, in the introduction to this volume, has no doubt that his death was accelerated by it. Taking oneself very seriously has clearly, like many another excellent quality, its defects. But if White was rash in undertaking to design a yacht, it should be remembered that—in the words of Lord Charles Beresford, quoted by Mr. Manning—he "restored to the ship of war the symmetry and beauty of design which had been lost during the transition from sails to steam. The transition vessels were nightmares."

We have already hinted that probably the record of the long series of successful ships that Sir William White built will be the most permanently valuable part of

this work. The author, once he gets away from minutes and memoranda, is occasionally difficult to follow. When, for instance, he describes White's business-like methods at Elswick—his "pointing out the growth of the Japanese navy to his Chinese clients, and of the Chinese to their indomitable rivals"—as the kindling "in the hearts of two Asiatic peoples the flames of an enlightened and sacred patriotism," we can only wonder whether even Sir William White himself would not have smiled.

W. S.

Egypt and the Army. By LIEUTENANT-COLONEL P. G. ELGOOD, C.M.G.
(Oxford University Press.) 16s. net.

Lieutenant-Colonel Elgood opens modestly with the remark that he is very conscious of his imperfections and lacks experience in the art of writing history. He need not have excused himself. He writes well, with an easy style enlivened by humour. What is more important, he knows his subject thoroughly. He has produced a book which supplements and brings up to date the works of Lord Cromer and Lord Milner. It is one, moreover, which is likely to hold its own and will not be replaced in any sense by the official record of the Sinai and Palestine campaigns. For his subject is not this campaign, but Egypt as affected by it. Fighting is incidental to the story he has to tell, and gets less and less attention as it rolls further and further across the Sinai desert to Palestine. He is concerned with Egypt herself and the political and economic results which sprang from her situation as the Empire's general reserve and base for the middle east in time of war. He begins, however, with two chapters on the position of the country before the outbreak of war, and these are a valuable contribution to the history of our times. We have sketched out in masterly fashion the triumphs, but also the failures, of the great Cromer *régime*, the feeling toward a different policy under Gorst, the administration of Lord Kitchener, cut short before its probable effects could be determined. The ground thus cleared, he embarks upon his real adventure.

Colonel Elgood is highly critical and does not put on rose spectacles for his task. Nor does he write from the official point of view, either that of soldier or civilian, though he knows and appreciates both. For a man who has so long been an official himself, he is singularly detached in his attitude. When discussing the fellaheen and their treatment by the military, he is careful to show how that treatment appeared to the fellaheen themselves. And it is perhaps significant that his book is dedicated to no British official or soldier, but to a body mainly French, the Suez canal company, "loyal and unseeking friend of the British military forces," which did not at all times receive the consideration due to it in return for its unremitting toil and generosity. But even in these cynical days mankind has, fortunately, not altogether lost the desire to make heroes, and Colonel Elgood, after hitting out all round with great effect, when he comes to the G.O.C. of the force in Egypt, uses his sword only to salute. The achievement of Sir John Maxwell during his eighteen months in Egypt was unnoticed by the public then and has been since forgotten. But in an empire which prides itself upon the qualities of its proconsuls it is worthy of notice. He started with the supreme advantage that to him Egypt and all its extraordinary complications was an open book. But his tact and skill, his strength and reasonableness—which do not by any means always go hand in hand—piloted the country through a very difficult time and greatly improved the relations between British and Egyptians. At the time of the Gallipoli campaign he had many of the functions of a War Office, without its power and without an adequate staff. When the Senussi trouble began, he had

tens of thousands of troops and hardly any soldiers to deal with it. He had to improvise a force of cavalry from the horse-tenders left behind when the yeomanry went to the peninsula, from untrained second-line territorials, with a single Sikh battalion on which he could rely. But it was on the administrative side that he chiefly triumphed. When we regard with just admiration the distant defence of the canal and the railway work carried out under Sir Archibald Murray, we must not forget that it was Sir John Maxwell who had drawn the civil administration into the defence of Egypt and put that fine machinery and those able men at the disposal of his successor.

One of the misfortunes of his period of command, though it is by no means certain that it is attributable to him personally, was the clause in the proclamation of 2nd November, 1914, that Great Britain accepted the sole burden of the war. Three months later an Egyptian battery was employed in the defence of the canal, while Colonel Elgood states that in the Egyptian camel transport corps alone there were over 1,600 casualties from enemy action and 4,000 deaths in field hospitals.

There are a great many interesting aspects of this book to which it is impossible to do justice within the space of a short review. The relations between the army on the one side and the canal company and civil administration on the other are well sketched, sometimes with a caustic pen. The political discontent is fairly and impartially examined. Those who desire to realise how and why Egypt has arrived at her present position and her present attitude can safely entrust themselves to the guidance of this shrewd and open-minded eye-witness.

C. F.

Vauban, Builder of Fortresses. By DANIEL HALÉVY. Translated, with Notes, by MAJOR C. J. C. STREET, O.B.E., M.C. (London, Geoffrey Bles).

M. Halévy writes for the general rather than for the professional reader, and makes no pretence to discuss technically Vauban's achievements as a builder of fortresses and a master of siege craft. His subject has been to paint a lifelike portrait of the man himself, and in this he has admirably succeeded. He brings to bear on his task a rare combination of learning, insight, and literary skill, and has produced an altogether delightful book. Incidentally, he has provided, in his extracts from Vauban's letters and memoranda, much valuable material for the study of France under Louis XIV.

Louis had a genius for choosing his instruments, and Vauban himself was one of the last of those great public servants who made the earlier part of the reign so glorious. Essentially a man of the seventeenth century, he was of the stuff of Colbert and Louvois, and had nothing in common with either the *flâneurs* or the theorists of the eighteenth century. In his straightforward honesty, his tenacity of purpose, his appetite for work, and the sturdy common sense he brought to bear on every problem presented to him, he had much in common with our own George Monk.

Of particular interest are the extracts from Vauban's correspondence with Louvois and with the King himself. They show that Louis could not only choose, but trust, and value a faithful servant, even to pardoning his outspoken criticisms and his occasional petulance. It is to Louis's honour that Vauban's protest against the persecution of the Huguenots and his denunciations of the rotten fiscal system never lost him the King's favour.

Both from natural kindness—shown in some charming private letters—and from a profound conviction that the strength of the State rested on the prosperity of the common people, Vauban was intensely interested in economic subjects, and

his reports paint a vivid picture of the widespread misery that underlay the glories of the reign. He was right in blaming the abominable system of taxation for much of this suffering; but he allowed too little for the inevitable exhaustion consequent on prolonged military exertion, and for the unseen pressure of British sea-power. What he saw, however, he saw clearly, and described with blunt force. Clear-headed, stout-hearted, very human, he was a man worthy to be remembered for what he was as well as what he did.

Major Street's translation deserves the highest praise. He has the rare and admirable gift of retaining the essential flavour of the French, while writing, himself, correct and spirited English.

C. E. F.

Introduction à l'Étude de la Guerre sousmarine. By A. LAURENS, capitaine de frégate: ouvrage publié sous la direction de l'état major général de la marine. (Augustin Challamel, Paris).

The object Captain Laurens has set before him is to give an outline of the submarine campaign which, without pretending to be complete or definitive, may serve to indicate the lines that a more intensive study of its various phases may most profitably follow. For this purpose, he follows the course of the campaign month by month, recording its effect on German and allied relations with neutral countries, the operations of the submarines themselves, and the measures of defence and counter-attack adopted by the allies. Each monthly section concludes with a statistical summary, showing the number of submarines destroyed and brought into service, and the merchant tonnage sunk by submarines and mines.

In his account of the development of anti-submarine warfare, Captain Laurens has, admittedly, been hampered by the lack of access to material other than that in the French archives. His account of the ocean and Mediterranean convoys systems, for instance, is very incomplete, and he is not always accurate in the date he assigns for the initiation of the various convoys. On the other hand, much of the information he gives as to the measures taken by the French navy, especially with regard to the system of patrols and the protection of the fisheries, will be new to British readers.

Despite certain inevitable gaps, the book fulfils admirably the author's intention. To regard it as more than an introduction to the subject, would be entirely to mistake its scope and purpose. As an introduction it is of the greatest value, and that value is increased by a really excellent series of graphs, bringing out very clearly the main features of the campaign. The one objection that may be made to Captain Laurens's general treatment of the subject, is that, in recording the gradual fall in the curve of losses from the high-water mark of April, 1917, he fails to allow sufficiently for the *cumulative* effect of those losses, and represents the margin that separated the submarines from a decisive success as wider than it really was.

C. E. F.

Le Blocus et la Guerre sousmarine. By A. LAURENS, capitaine de frégate Armand Colin).

It can hardly be doubted that the economic consequences of the naval war will be more important in European history than the operations of the allied fleets; and that, when Jutland is forgotten, the effort of each group of belligerents to cut off essential supplies from its opponent will have left its mark upon the rules of

maritime warfare, and the public law of Europe. Capitaine de frégate Laurens is, therefore, well advised in having selected a subject which nobody has dealt with up to now, and which is, besides, of enduring interest. His treatment of it is in accordance with the strictest rules of French historical science. By judiciously choosing the facts which he sets out, by not overcrowding them, by taking care that the perspective of his narrative is never for a moment thrown out of adjustment, and by a sort of politeness to his readers in seeing that nothing is insisted upon, and everything made clear, captain Laurens has made a contribution to the political and military history of his time which will take its place among the standard works of war literature.

When the German government first declared submarine war upon shipping, they made it quite clear that they were retaliating against us for exerting economic pressure upon them by naval means. Submarine warfare was, throughout, in the nature of a reprisal; but public opinion in allied countries, being more concerned with its cruelty than its other aspects, never realised how closely it was connected to the economic weapon that we were using to the utmost. The lunges of the one, the parries and ripostes of the other, were outside our range of vision.

Captain Laurens divides submarine war into two periods, each of two years' duration. "During the first, the war is waged against the mercantile marine of Great Britain and her allies. Discrimination is made with regard to ships, and they are warned. Attacks are made on the surface and by gun-fire. Anti-submarine operations are offensive, and operate by means of surprises, such as disguised vessels and submarines.

"Bit by bit the whole German nation realised that a successful war upon commerce will only be waged if ships are no longer warned. It is then directed against every vessel afloat, without distinction. Attacks are made blindly, submerged, by means of torpedoes. Anti-submarine operations are now mainly defensive; offensive methods are so elaborate that they can only be brought to bear during the past twelve months. On the one hand, they consist of enormous minefields and on the other, of large depth charges, numerous rapid craft, and submarine detecting appliances."

The history of the blockade of Germany is more complicated. In 1914 it was not thought that economic pressure would ever be exerted by any but naval means. It was proposed, simply, that our intercepting squadrons should search all vessels met with, and send in ships which were suspected of carrying supplies to the enemy directly or indirectly. This naval pressure was found to be in itself inadequate; but it pointed the way to a new method: that of driving special bargains with neutral traders and shipping lines. These agreements differed in detail; but the principle behind them was the same. We were ready to relax some of the rights which we undoubtedly possessed in law, if neutral shippers would give us certain guarantees in return. As the mere exercise of the right of visit and search—apart from measures which we were entitled to take against suspected cargoes—were very burdensome, and as those with whom we had to deal were ordinary business men, whose principal concern was to carry on their trade with as little interference as possible, we had little difficulty in driving bargains satisfactory to ourselves. Neutral shippers gave the guarantees against re-exportation and some of the burdens which ordinarily fall upon belligerent forces were transferred to them.

This first extension of our blockade machinery was therefore a sort of corollary to naval power, in that we should never have been able to strike such agreements but for the naval control which we were exercising. These special agreements led us to others of rather a different kind, in which our coal and industrial resources were the chief source of our bargaining power. Like the first class they were

mainly contracted with individuals and groups of traders, and so accentuated the general tendency to carry our blockade measures outside the scope of positive law. The system was then completed by the arrangement known popularly as the rationing of neutral states. The term is very deceptive; for although it is quite true that the basis of the whole system was to allow neutrals the quantity of commodities which they required for home consumption, the agreements which put the system into operation were hardly ever made between state and state; but were simple a renewal of the contracts which we had already made with neutral shippers, redrafted in a more embracing form. Numerous supplementary arrangements connected with shipping and bunkering completed this complicated mechanism.

There is a question which occurs to every thinking person who contemplates the measures which, for want of a better name, were called the blockade of Germany. How far are they destined to alter the rules of international law? Granting that the declaration of London is obsolete, what regulations will replace it? It is a very hard question to answer; but when the blockade of Germany is examined in detail, it will at once be seen that a great deal of it was quite outside the range of international law. The law of nations regulates the dealings of states, not of individuals, and by no possible extension can it be made to cover the arrangements which neutral traders care to make with a state at war. If Great Britain could make it more convenient for a butter merchant in Holland to sell his produce in London than elsewhere, then there was obviously no international regulation to prevent him from doing so. The guarantees imposed to ensure that the contract was fulfilled were equally a private matter. The same reasoning applies to agreements by which the directors of a neutral shipping firm undertook only to carry goods for consumption in their own country, in return for privileges which it was within our power to confer. None the less, these arrangements are more nearly within the range of public law than would be imagined. If a neutral government, acting under pressure of circumstances, had put all shipping under state control, it would seem as though about one-half of our blockade agreements would have fallen to be judged by the rules of neutral and unneutral service.

Does this imply that the power to cut off an enemy's sea-borne supplies is a mere derivative of a country's economic strength; and that it no longer rests upon her naval superiority? Hardly; a great many of our most important agreements with neutrals rested simply upon our strength at sea. Had the vigilance or efficacy of our patrols been relaxed neutral shippers would have had no interest in consenting to our proposals. The ancient right of visit and search, exercised with the full rigour that law and custom allow, was a real fountain of bargaining power.

It is the peculiar merit of captain Laurens's book that it raises questions of this kind, not by insistence upon them, for he is exceptionally reserved in comment; but simply by the class of fact he sets down. His closing chapter upon the freedom of the seas is an admirable example of his method. By apt, though full, quotations, he shows how the perennial controversy of *mare clausum* and *mare liberum* has re-shaped itself to modern conditions. There can no longer be any question of a state claiming sovereignty over the open sea; but the essence of the question remains. What degree of control can a belligerent legitimately exercise over neutral navigation in the open ocean? At least two very distinguished Frenchmen have attacked the subject before Laurens; but neither the learning of Ortolan, nor the judicial training of Hautefeuille enabled them to deal with it in a spirit of such grave impartiality.

A. C. B.

Old Naval Prints: their Artists and Engravers. By COMMANDER CHARLES N. ROBINSON, R.N. (The "Studio," Ltd., London.) Royal quarto. 1924.

This volume forms the latest addition to the admirable series of monographs on various branches of art periodically issued by "The Studio." In common with its forerunners, it contains an introductory essay and a large number of reproductions which, owing to the fidelity of modern "process" work, are but little inferior in effect to the originals from which they were made, and are thus of the utmost value to all students and lovers of art.

The present volume has, however, an equal or even greater interest for naval officers and others engaged in any kind of nautical research: although it must be confessed that for such purposes the average naval print is a weapon which must be wielded with caution. The perfect marine artist would have to be a compound of Turner and, say, Collingwood: a "complete seaman" equipped with the vision and technique of a great artist. Too often, the effective battle-piece will not stand nautical criticism (everyone has probably seen, for instance, a well-known picture of Trafalgar, with the wind, as shown by the trim of the sails, blowing vigorously from two opposite points of the compass; while, on the other hand, drawings by practical seamen are generally possessed of the unflinching accuracy and rigid precision of Egyptian hieroglyphics, and have about the same artistic value. Again, even if the artist be also something of a seaman, his work may still be rendered misleading by outside influences, as two examples in this book, by perhaps the greatest marine artist who ever lived, conclusively demonstrate. They are engraved after Van de Velde, and the engraver, working direct from the original on to the copper (as Whistler did, long afterwards, in his "Venice" etchings), has, of course, reversed the position of the ships and the direction of the wind.

Still, prints of naval actions have often proved of great value in supplying information not to be found elsewhere, and the present work renders available a large number of well-chosen examples, some of great rarity.

It should be noted that, with but three exceptions, all are battle-pieces, and represent actions in which British ships were engaged; and to this extent the title is, perhaps, somewhat misleading. There are, of course, very many naval prints of other kinds, representing what commander Robinson aptly terms "naval *genre*—the domestic scenes and every-day incidents. . . ." A collection of these would form an admirable companion to the present volume, although its artistic appeal would, of course, be much inferior.

Commander Robinson's introduction gives a short and clear *résumé* of the leading facts connected with the historical events which form, as it were, the background of the various actions, shown in the prints, and with the lives of the artists and engravers. He has also added, below each reproduction, a short note commenting upon the incidents which it depicts—an admirable plan, which greatly increases its interest and value.

The plates, which cover the period 1588–1815, number 96, and include reproductions from woodcuts, line engravings and aquatints; 24 are in colour, and separately mounted. The printing is uniformly admirable. The originals are almost all in private hands, and were lent for reproduction by their owners. We congratulate all concerned in the production of a work of great interest and usefulness.

R. T. G.

Studies in Polish Life and History. By A. E. TENNANT, F.E.I.S.
(London, George Allen & Unwin, Ltd.) 1924.

Except to serious students of European politics and national development, the story of the rise, fall and resurrection of Poland is generally an unopened book. The salient facts in the history of this distressful country during the last century and a half, the callous dismemberment of a living though apathetic nation, the tragic and fruitless struggles of a national spirit awakened too late, the stern repression of such efforts at the hands of the conquerors—these are facts known to all the world, but generally through the medium of the history of other nations. Surely the chronicles of a race which for five hundred years held the marches of Europe against the ceaseless incursions of barbarian hordes, whose king stemmed the victorious tide of the Ottoman advance at the very gates of Vienna, which developed—prematurely, perhaps—democratic ideas and religious toleration far in advance of its neighbours, which loved individual liberty so much that it was thereby led inevitably towards its own enslavement, are worthy of a better fate at the hands of succeeding generations!

Up to the present the difficulty has been that the study of the records of mediæval Poland has involved the perusal of a number of books, in several different languages, in order that the sequence of facts may be attained and the intellectual and political outlook of the actors in the drama appreciated. Mr. Tennant has rendered a great service to students of to-day, who have so much more ground to cover than their predecessors, but only the same lifetime in which to do it, in that he has extracted from the life-history of the Polish state the most useful lessons which it contains, has traced them carefully down the ages, has summed them up clearly, concisely and with the care of a defending counsel, and then has placed the facts before the judgment of posterity, that those who run may read and there is much to read.

To those interested in the science of government he gives plenty of food for thought. The picture of a state governed by an oligarchy of lesser nobles who were so jealous of their own individual liberty that they deliberately undermined the central authority in order to preserve it, and destroyed discipline in the state to such an extent that it became a helpless, easy victim to its designing autocratic neighbours, presents a paradox that is most instructive. At the same time, in placing this sketch before the reader, he has demonstrated the mentality and motives of the Poles so that their actions become explicable, and it can be understood how their unreasoning idealism and perverted passion for placing the rights of the individual before the good of the community, set them upon a path of inevitable disaster. Then, too late, after the tragedy of a partition which they had made themselves helpless to avert, the national spirit awoke. Another sketch shows the reader how, nurtured in secret through a century of adversity and repression, that spirit survived, in spite of every handicap, until it was incarnate in the Polish state new-born at the close of the Great War. How Poland adapted herself to the conditions of slavery, and even profited by them in her commercial and industrial revival, is sympathetically told by the author who, from the adaptability of the people, augurs well for the prosperity of the new state, providing it can profit by the lessons of its own history. The Pole himself is too much of an individualist to be readily attracted by the doctrines of communism, though there is some risk in his natural tolerance of foreign elements; but for this, stable government should be assured, for servitude, exile and adversity have taught him patriotism at long last.

The relations between Poland and Russia form the subject of another interesting sketch, in which the political and religious causes which gradually brought about

antagonism between the two branches of the Slavonic race are traced. The history is a poignant exposition of the ultimate triumph of a definite and continuous policy, guided by the autocratic will that formulated it, over a government which was degenerating into anarchy and whose foreign policy, if it existed at all, was purely one of *laissez faire*. It is a lesson in national discipline.

The chapters on Polish literature and music are delightfully rendered by one who is obviously an enthusiast on the subject. Quotations of poetry and prose translations and national airs supply apt illustration to this section of the work.

While the volume is tastefully produced, with a chronological summary which is distinctly useful, and a good index, the maps might, with advantage, be amplified in future editions.

J. G.



REGIMENTAL DINNERS

The Management of the

GRAND HOTEL TRAFALGAR SQUARE

suggests that early application be made regarding regimental dinners. The continued influx of overseas visitors and the inevitable increase in the number of reunions prompts this notice.

THE HOTEL METROPOLE, NORTHUMBERLAND AVE.,
IS ALSO AVAILABLE FOR SIMILAR FUNCTIONS, WHICH ARE HELD IN
THE ST. JAMES'S ROOM.

THE GORDON
HOTELS, LTD.

Apply direct to the Manager
in each instance.

Managing Director :
FRANCIS TOWLE.

You know men who are always fit

They never seem "out-of sorts,"
they are always "ready for any-
thing"


They probably make it a rule to
drink daily a glass of water with
a 'dash' of ENO'S "Fruit Salt."

They know by experience that
ENO is the finest thing for keeping
health in trim.

ENO is a delicious, sparkling,
health-drink. Being free from
sugar, flavouring matter and pur-
gative mineral salts, its regular or
frequent use has no drawbacks.

ENO'S
TRADE "FRUIT SALT" MARK

The World-Famed Effervescent Saline




AN OXFORD Sectional Bookcase will ensure a continuously pleasing "finished" appearance at all times. Each OXFORD Section joins its neighbour by means of practically invisible joints which "fit like a glove," and the most critical examination but serves to reveal the beauties of design and construction which place the OXFORD far in advance of any seemingly similar bookcase.

'OXFORD'
Sectional Bookcase

Handsome Illustrated
Catalogue FREE.

WILLIAM BAKER
& Co., Ltd.
Library Specialists, OXFORD.

London Agents: Dulau & Co.,
Ltd., Booksellers, 34-36
Margaret St., Cavendish Sq., W.



UNIVERSITY OF LIVERPOOL. FACULTY OF ENGINEERING.

Dean—Professor T. B. ABELL, O.B.E., M.Eng., R.C.N.C.Ret., M.Inst.N.A. Prospectus containing full particulars of the following may be obtained on application to the Registrar:—Engineering, Electrical Engineering, Civil Engineering, Naval Architecture, Marine Engineering, Design and Drawing, Refrigeration, Metallurgy, Geology, Mathematics, Physics, Chemistry.

CHARING CROSS HOSPITAL, AGAR STREET, STRAND, W.C.

THE HOSPITAL FOR ACCIDENTS.
200 Casualties Treated every Week.

IN URGENT NEED OF CONTRIBUTIONS AND LEGACIES.

THE SOCIETY FOR NAUTICAL RESEARCH

(Founded in 1910).

President:

Admiral of the Fleet Sir F. C. DOVETON STURDEE, Bart.,
G.C.B., K.G.M.G., C.V.O., J.P., LL.D.

THE OBJECTS OF THE SOCIETY:

(1) To encourage the study of nautical and naval antiquities; including the dress and equipment of seamen in all ages and races, and the build of ships, both men-of-war and merchantmen.

(2) To compile a reliable Sea Dictionary or Sailor's Word-Book, and, with that end in view, to collect information which will explain obscure words and phrases, together with the customs, usages and folk-lore that gave rise to them.

(3) To pave the way to the establishment of a National Maritime Museum, such as those which already exist in countries less renowned than Britain for connection with the sea.

The Society has raised £80,000 to save Nelson's Flagship and has undertaken to restore H.M.S. *Victory* to the exact appearance which she wore at Trafalgar.

The Society issues once a quarter an illustrated journal of one hundred pages devoted to the study of nautical archaeology in all its branches.

The subscription of *One Guinea* entitles all who join the Society to one copy of all its Reports and quarterly journals.

For particulars of membership apply to the Honorary Secretary,

PROFESSOR GEOFFREY CALLENDER, F.S.A.
R.N. College,
Greenwich.

THE "Cavalry Benefit Association."

For particulars apply to
THE SECRETARY,
92, Victoria Street, London, S.W.1

The ARMY & NAVY JOURNAL.

Established 50 years.
PUBLISHED WEEKLY. Recognised at home and abroad as the leading Military and Naval periodical in the United States.

20, VESEY STREET,
New York, N.Y., U.S.A.
Subscription £1 9s., including postage.
Sample copy sent on request.

The FIELD ARTILLERY JOURNAL

The only Field Artillery Magazine published in the United States.
Address: The Secretary,
U.S. Field Artillery Association,
War Department, Washington, D.C., U.S.A.
Subscription \$3 per annum.

"THE MARINER'S MIRROR,"

The Quarterly Journal of the
SOCIETY OF NAUTICAL RESEARCH.

CAMBRIDGE UNIVERSITY PRESS,
Fetter Lane, London, E.C. 4.

•
containing
electrical
drawing,

STREET,
D, W.C.

CIES.

CH

art.,

dress
-war

d in
ether

such
ction

n to

ages

y of

RNAL.

home
as the
ry and
al in the

age.

OR,"

ICH.

ESS,

.C.4

LOOSE LEAF LEDGERS

save time, trouble and money.

Specially designed for NAVAL & MILITARY Offices, Regimental Institutes, etc. Specimen Ledger sent on approval, on receipt of enquiry.

ALEXANDER COUTTS & CO., LTD.

MANUFACTURERS,

45-46 Fetter Lane, London, E.C. 4.

EVERGREEN VELVET LAWNS

Now is the Time to
make your Lawn perfect

THE USE OF

"CLIMAX" LAWN SAND

or

"PREMIER" Lawn Dressing

will transform your Lawn.

*Write now for particulars and
hints on Lawn Improvements.*

GARDEN SUPPLIES, Ltd.,
Cranmer Street, Liverpool.

.. THE ..

"TRETONE SEPARAPHONE"

(The Gramophone with the "TONE-FILTER").

**NO HISSING, BUZZING,
or GRATING NOISES.**

This wonderful instrument SOUNDS ITS OWN PRAISE.

Call and hear for yourself what it has to say, or write for particulars to :

THE TRETONE SEPARAPHONE COMPANY,

46, Museum Street, W.C. 1

(opposite MUDIE'S LIBRARY, Museum Street Entrance).

TERMS CAN BE ARRANGED TO SUIT CLIENTS' CONVENIENCE.

MAYFAIR CATERING CO., LTD.

Always for Moderate and Best Entertaining

FINEST BALL SUPPERS

Write or call—34, NORTH ROW, PARK LANE, W. 1

PRIVATE RESIDENCE of good address **LENT FOR DANCES**

Moderate cost. Apply as above.

NOTICE TO ADVERTISERS.

"The Journal of the R.U.S.I." is now a Quarterly Publication.

C. GILBERT-WOOD,
Director of Publicity.

CARLISLE & GREGSON

(MEMBERS OF ASSOCIATION OF ARMY TUTORS)

5 & 7, LEXHAM GARDENS, KENSINGTON, W.8

**Prepare Candidates for NAVY (Special Entry), ARMY,
ROYAL AIR FORCE, ROYAL MARINES,
STAFF COLLEGE and PROMOTION.**

STAFF COLLEGE.

At the examination under the new syllabus held in February, 1923:—

CAMBERLEY.

TWENTY-FOUR of the THIRTY-SEVEN officers
on the successful list
were assisted by us
besides THIRTY-FOUR others who qualified.

QUETTA.

SEVEN of the SIXTEEN officers
on the successful list
were assisted by us
besides Two of the FIVE nominated.

PROMOTION.

During 1922 and 1923 out of about seventy officers who read with
us all but two or three passed.

OTHER RECENT SUCCESSES, 1920 TO 1922, INCLUDE:—

NAVY (Special Entry)	- Two	SANDHURST	- TWENTY-SEVEN
WOOLWICH	- - SIXTEEN	ROYAL AIR FORCE	- EIGHT
KING'S CADETS	- - - SIX		

Telegraphic Address—"LEXJAM, KENS, LONDON." Telephone—WESTERN 1287.

